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A Dissertation on TYPHUS MITIOR, *or low Nervous Fever: read before the Medical Society of the State of New-York. By Dr.* MOSES WILLARD, *of Albany, Honorary Member of the State Medical Society, and Fellow of the College of Physicians of the State of New-York.*

IN treating on this subject I am disposed to agree with Dr. Rush, in admitting the unity of fever.

In order then to obtain a just idea of this state of fever, it will be necessary to obtain a right understanding as to the cause of fever in general.

When we consider the many ages since the science of medicine has been cultivated, and the exertions of so many eminent labourers in the field of science, even from the early ages of the world, down through the long tract of time to this present period, it might be supposed that medical science had been brought to a state of perfection; especially when we consider the importance of its object, being no less than the health and well being of the human body, the residence of a rational and an immortal soul. But, alas! we are obliged to confess that this is not the case. We may then yet with propriety adopt the language of the father of physic, Hippocrates, and say "*Art is long, but life is short.*"

Notwithstanding so many luminaries, both ancient and modern, have shed their light into the path of medical

science ; yet, if in this light I am not able, to my satisfaction, to discover truth, I do not feel myself justified in copying the sentiments of a favourite author, or by the composition of any number of opinions, patch up a thing which may be very far from the truth ; but shall endeavour to let nature be my guide, although she may lead me into an humble and unfrequented path.

I am fully satisfied that a mere hypothetical theory is but of very little consequence. Unless, therefore, we can come at truth by pursuing nature, and in understanding the phenomena she exhibits, we shall still remain in the dark.

In attempting this, (I speak it with diffidence,) I know of but very little light to be obtained from any thing I have ever yet seen on the subject of fever.

If, therefore, in attempting to travel in an unfrequented path, and having but little light to guide my way, but what I may obtain from my little taper, lighted at nature's lamp, I should make many missteps, I hope the candid and ingenuous will throw the mantle of charity over my failings, and believe, that it is from an earnest desire to diminish the quantity of natural evil, which has caused me to make the attempt, however I may fail in the accomplishment of my desired object.

In the further prosecution of this subject, therefore, I shall not be anxious about the beauty of the picture, but shall endeavour to draw a likeness of nature.

A state of health appears to consist in a due degree of energy, and an equal distribution of the animating principle, which distinguishes between dead and living matter, and gives sensation to, and is the cause of action in the various parts of the living animal body ; by which means all its functions are duly performed : and any departure from this will be a state of disease. The degree of disease will be in proportion to the departure from a state of perfect health.

When blood is drawn from a vessel, it appears to be an homogeneous mass ; but after a short time, a spontaneous separation takes place, which shows it to be an heterogeneous substance, made up of different particles of matter.

But this point will be further elucidated by adverting to the different kinds of matter which is secreted by the various glands in the body, from the same mass of blood.

In a state of health, food is taken into the mouth; and in the act of mastication, the salivary glands yield their contents, to be mixed with the food: it is then conveyed into the stomach, where, from the solvent qualities of the gastric juices, digestion is performed, and the digested matter passes the pylorus into the intestines: the chyle is taken up by the lacteal vessels, and conveyed into the circulating mass of blood; assimilated therewith; and nourishment is applied to the body; and the glands perform their various secretions; some of which are excrementitious; viz. the urine, the bile, the pancreatic juice, the matter of perspiration, &c.

Some of these, however, have their peculiar use before they leave the body.

Other secretions appear to be specially designed for the purpose of being mixed with our food, in order the better to prepare it for digestion and nourishment; such as the saliva, gastric juices, &c. besides the special office performed by the lymphatic system.

Taking these things into consideration, we must suppose the due performance of all the glandular functions are of very great consequence in the animal economy; and any thing which prevents this must produce disease. This, in fact, we find to be the case.

We may then conclude, since we find the blood to be such an heterogeneous mass, furnishing so many kinds of matter to be secreted from it, by the various glands, that health cannot be enjoyed unless these secretions and excretions be constantly and duly performed. Otherwise much matter, which nature designed to be separated constantly from the circulating mass of blood, and to be thrown out of the system, as excrementitious, will be held in union with the blood, producing much disturbance in the animal economy.

As the liver is the largest, so it is undoubtedly the most important gland in the body; and it appears to take the lead, and to govern the rest of the glands, and even the lymphatic system.

It may, therefore, be proper to advert to some circumstances relative to the anatomy of the liver.

The branches of the cœliac and mesenteric arteries distribute their contents to the stomach, intestines, pancreas,

and spleen, besides the hepatic artery, which supplies the liver with blood for its own nourishment. The blood circulating through all these viscera excepting the liver, being returned by their respective veins, is poured into their common trunk, the vena portarum: thus the origin of the vena portarum appears to consist in the concurrence of all the veins of the peritoneal viscera except the liver. If, therefore, any obstruction exists in the liver to prevent the free return of blood from these parts to the heart, the consequence must be a congestion of blood in the abdominal viscera; which undoubtedly generally takes place in fever.

The peculiar anatomy of the liver, with its secretions and excretions, together with the qualities, the use, and importance of the bile in the animal economy; and the effect of a disordered state of the liver on the rest of the body, and especially on the rest of the glandular system; appear to me to have been too much overlooked in the doctrine of diseases in general, and especially in that of fever.

When food is taken into the stomach, and digestion has taken place, it passes the pylorus, and enters the duodenum, at which place the chyle begins to be taken up by the lacteal vessels, to be conveyed into the receptaculum chyli, and from thence conveyed by the thoracic duct, into the left subclavian vein, to be mixed with the circulating mass of blood.

Now a certain time will be necessary for the lacteal vessels to perform their office after every meal. It then will follow, that if there is a morbid excitement as to the peristaltic motion of the intestines, their contents will be too suddenly evacuated: hence a part of the chyle will be discharged with the excrementitious part, and the system deprived of that proportion of nourishment it otherwise might have had.

On the other hand, if the peristaltic motion of the intestines be retarded, and what nature designed as excrement be too long retained in the intestines, the lacteals continuing their action; a portion of excrementitious matter will be taken up, and conveyed into the circulating mass of blood, which will act as a poison, and produce a disturbance to nature, and prove a source of irritation and fever.

This is not the only thing to be taken into consideration; for it is evident to reason, that if excrement be retain-

ed too long in the intestines, there will be a congestion of morbid matter, which will not only act as a septic poison, but as an extraneous body, producing uneasiness and disturbance throughout the whole system.

Mankind have been long led to believe that the bile was their mortal enemy; and such is the terror fastened upon the minds of people with respect to the effects of this supposed poison, that the impostor has had no difficulty in vending his nostrum, although it may be ever so worthless, if by any means he can impose upon the credulity of the public, by making them believe that his medicine will destroy the bile: hence the name of bilious medicine, and bilious pills, has so charmed the ear of the public, that the impostor has fastened on his ill-gotten gain, while the public have had reason to lament their folly, in paying too dear for their whistle.

From experiments, the bile is found to possess powerful antiseptic qualities; it is therefore of the greatest consequence to our health and well-being, in order to correct the septic acid in the intestines, from which arises most of those distressing pains of the bowels in the colic, dysentery, cholera morbus, and in many other diseases.

This septic acid is the natural consequence of the process of digestion of our aliment: hence it is, that in a state of health, when the stomach is filled with food, it presses the liver and gall-bladder, procuring a discharge of both cystic and hepatic bile, to be poured into the duodenum, to be mixed with the digested matter, as well as to flow round it; to give the natural stimulus to the bowels, and keep up the peristaltic motion of the intestines.

The bile, in its healthy state, contains a gummy, resinous, and bitter substance, together with a saponaceous and alkaline quality; and may be considered as nature's physic.

From these considerations we find the bile of much consequence in the animal economy: hence, therefore, instead of considering it as our enemy, we may think it one of our best friends, without which we cannot enjoy that most invaluable blessing, health of body, (and, I might say, sanity of mind:) for I am confident that most of the cases of insanity, and lowness of spirits, proceed more or less from this cause.

If this doctrine then be true, we may perceive the folly

of searching the materia medica for medicines to destroy the bile, since the very diseases these medicines are designed to cure, arise from a want of a sufficient quantity of healthy bile for the purposes above stated, as well as for many others.

Furthermore, the bile, in its healthy state, and in due quantity, renders the excrements soluble, similar to what we see to be the effects of good yeast mixed with flour and water in the process of making bread: and any person of observation may judge of the healthy state of his liver, and of its secretions and excretions, from this circumstance.

This observation may be of particular service to all who lead studious and sedentary lives, as they are more liable to suffer from a torpid state of the glandular and lymphatic systems; and especially from a costive habit, owing to a want of action of the liver and its biliary ducts.

The free use of brandy is injurious both to body and mind, and in a particular manner disposes the system to be thrown into diseases, from bringing on obstructions of the glandular system; and those persons who are in the habit of indulging themselves in the free use of this liquor, may expect a short life, attended with disease, pain, and sorrow.

I have, for many years, been of opinion, that the liver was as a parent who took the lead and governed the rest of the glands, and also the lymphatic system. This I think is exemplified in the dropsy.

It is also evident to me, that in cases where mercury is given so as powerfully to excite the salivary glands, yet it does not relieve obstructions of the liver; but, on the other hand, where there are obstructions of the liver, accompanied with a torpid state of the glandular system, by removing the obstruction of the liver, the rest of the glandular, and even the lymphatic system do yield their consent. This, if I am not very much mistaken, I have often seen exemplified.

In advancing this opinion, however, I am fully sensible that, if I am not treading on the tombs of my fathers, and disturbing their ashes, I am at least controverting a popular opinion, and giving disturbance to many worthy characters among the living. But however this may be the case, I

am obliged, from much observation and experience, to adopt this sentiment, notwithstanding I may be left to stand alone. (See my observations on the remitting fever at Albany, 1809, &c.)

There is in a state of health a continual generation of heat in the human body, a certain quantity of which is necessary to health: if, therefore, from any cause there be an accumulation of heat, it produces disease, unless the means of conducting off this superfluous quantity of heat be also increased.

We find water to be a good conductor of heat. The subcutaneous glands, in a state of health, are continually secreting from the blood a watery fluid, which is passing off through the pores of the skin, in greater or less quantity, in proportion to the heat of the weather, or the exercise of the body.

Nature is therefore furnished with the means for her relief; for if from exercise of the body, or from the warmth of the weather, the heat is increased at the same time, this heat acts as a powerful stimulus to the heart and arteries, by which means the velocity and momentum of the blood are increased also; therefore more blood is sent to the subcutaneous glands, which proves an additional stimulus, causing them to secrete a greater quantity of perspirable matter, or watery fluid; which, being excreted, as the sweat flows from the surface of the body the heat is conducted off.

Here then we find the blood not only freed from an excrementitious matter, but in doing this, another important office is performed, without which, health cannot be enjoyed, nor life long sustained.

Here then is an astonishing display of infinite wisdom, in comparison of which, all finite knowledge is consummate folly.

Well might the inspired penman say, that "we are fearfully, and wonderfully made," and that our preservation was still a greater wonder! Hence we may see the danger of sudden transitions from heat to cold, and from cold to heat.

We may also see the reason why persons are more subject to fever from a change of climate; especially from a cold to that of a warm climate. And also why a large

draught of cold water, taken by a person when the body is very much heated, should produce those injurious and fatal effects.

After premising thus much, let us turn aside and examine a patient in the most simple state of fever; one who a few hours since was in full health, strength, and activity; but now, from the application of cold, we find a degree of prostration of strength, some pain and uneasiness in the head, dryness of the mouth and skin, more susceptible than usual of cold, with some chills passing over the surface of the body, with an increase of the frequency of the pulse, and some increase to the touch, although the patient complains of feeling cold.

But notwithstanding those symptoms, the patient's bowels are in a soluble state, and no indication of any particular morbid affection of the internal system.

Hence, by taking freely of some warm mild drink, and going into a warm bed, perspiration is restored, the mouth becomes moist, the head grows calm, and composed: our patient falls into a quiet sleep; awakes in the morning, finding himself in possession of his usual strength and spirits, and is able to pursue his daily labour as usual.

Now, the question will arise, why, in this case, our patient felt such a degree of debility? He has not laboured unusually hard to exhaust his strength; there had been no depletion, and has had his common support from food.

On the other hand, in a few hours time he is again in the enjoyment of health, strength and spirits, although he has taken no food or sustenance, except a mild watery drink!

Here then nature has exhibited to us certain phenomena, which, if we can read, and understand, we shall have made an important step toward obtaining our object. The question of the sacred penman may be addressed to us: "Understandest thou what thou readest?"

We find that the glands are furnished generally with an artery, vein, secretory duct, excretory duct, lymphatic duct, and nerve. The nerves are the instruments of sensation, and the cause of action in the various parts of the animal body. If the nerves, from any cause, cease to perform these functions in any part, that part becomes torpid and inactive, and of course there is an unequal distribution of

the animating principle. The action of cold, in a certain degree, on the human body, may be stimulant; but in a certain other degree, it proves a powerful sedative: hence then we may conclude, in the case above mentioned, that such was the effect produced upon the subcutaneous and salivary glands, in consequence of which they were thrown into a torpid and inactive state.

But as the nerves on which the vital functions depend, were in full action, the heart and arteries retained their sensibility; and as the blood is prevented from throwing off its usual excrement by the pores of the skin, the blood proves a greater irritation to the heart and arteries: hence the velocity and momentum of the blood is increased; and as perspiration is stopped, blood is not only prevented from freeing itself from an excrementitious matter, but nature is prevented from freeing herself from an accumulated quantity of heat.

The reason why this state of fever is so easily removed, is, because the internal, and more important glands, were not affected, but continued to perform their healthy functions: hence the intestines continued their regular peristaltic motion; of course there was no accumulation of morbid matter in those parts: therefore these simple remedies were sufficient to perform the cure.

But when the noxious, or offending power is more generally applied, and especially where there is a morbid predisposition, all the glandular, and frequently the absorbent system, is concerned in the disease; of course a fever of a more formidable nature will be the effect, requiring a more energetic mode of practice, as well as a more general application, in order to effect the cure.

The application of cold, in one form or another, is, perhaps, one of the greatest and most frequent causes of disease which afflicts the human body; and for the reason above mentioned.

Hence then, if the preceding ideas are just, it will follow, that the proximate cause of acute fever must be a torpid inactive state of the glandular system; while, at the same time the heart and arteries retain their usual sensibility.

According to the law of fluids, they press in every direction, equally where the resistance is the same; but if there is a resistance in one part, and not in another, the

fluid will of course be congested in the part where there is the least resistance.

If then there be a torpid state of the glandular system, there will not be a free circulation of blood into these parts: hence there will be a diminution of the capacity of the vessels containing red blood; of course more blood will press through the heart and large arteries in a given time, and the heart and arteries retaining their usual sensibility, this increased quantity of blood thrown into them, will also prove a greater irritation to them, and bring on that morbid action which may be called fever.

Agreeable to this doctrine, the indications of cure in an acute state of fever will be, first, to evacuate all congested, extraneous, and excrementitious matter from the primæ viæ; secondly, to restore the glandular system to its healthy action; and, in the third place, to obviate the effects of debility.

The Symptoms of a Typhus State of Fever.

On approaching the bed, the first thing that strikes our attention, is a peculiar appearance of the countenance; great debility, a weak and quick pulse, a dry skin, attended generally with a peculiar sensation of dry heat to the touch; the mouth, lips and teeth dry, the tongue dry, with a brownish coat generally, but sometimes of a deep fiery, glazed, and dry appearance, urine in small quantity, and apparent drowsiness, a torpid and inactive state of the bowels; but in some instances a diarrhœa, tremor of the hands, &c.

From the phenomena exhibited in this state of fever, we find not only an inactive state of the glandular system, but also a want of energy in the whole nervous system; in consequence of which, the heart and arteries are not excited into great action, as in the state of acute fever.

We stated, that the degree of disease in any case would be in proportion to the departure from a state of health. Here then, in this state of fever, we find, from the phenomena, a greater departure from a state of health than in an acute state of fever. Here the whole glandular and lymphatic systems are in a more torpid and inactive state, and at the same time a great diminution of the vital

energy throughout the whole system: and hence the stomach can receive little or no food, as the power of digestion is in a great measure, or in whole, suspended, the assimilative powers inactive; consequently no nourishment is applied to the support of the body.

A torpid state of the intestines being induced, what ought to have been evacuated as excrement, is retained in the bowels; there to act not only as an extraneous substance, but as an active poison, from the increasing state of the septic acid.*

The mass of blood which we find to be that heterogeneous substance, furnishing so much excrementitious matter, continues its round of circulation without parting with that which should be separated from it, and in this state tends toward a state of dissolution.

I do not however suppose that the blood runs into a putrid state while life continues, but may approach so far toward it, that it may take place soon after death.

While these changes are taking place in the internal system, the external symptoms evince to us a constant diminution of the nervous energy; for by the irregular influence of the animating principle, some parts become convulsed, while others are paralytic; hence the trembling exertion in picking the bed clothes, the faultering, and inarticulate speech, together with the subsultus tendinum, the glazed appearance of the eyes, the coldness of the extremities, and the *Facies Hippocratica*, are the harbingers of the king of terrors, who soon advances to close the tragic scene!

(To be continued.)

* On the conversion of perspirable fluids to septic or pestilential matter, see Mitchill's letter to Duncan, Med. Rep. vol. iii. p. 161—172; and on the power of alkalies to counteract it, see his theory of cleanliness, Med. Rep. vol. v. p. 191—197. *Edit.*

An interesting and instructive History of GOUT, *afflicting the Patient from* 1777 *to* 1814, *a term of thirty-four years; with Reflections on the Progress, Symptoms, and Treatment of that cruel Disease, and on the Efficacy of the Eau Medicinale de Husson. Addressed to the Editors, by the Sufferer himself, in a Letter, dated Gloster-place, near Natchez, Dec.* 31, 1813.

GOVERNOR SARGENT *had* not notices that he was himself constitutionally predisposed to gout; but from the very early sufferings of himself and a brother, fourteen years younger, he is inclined to believe an arthritic taint in their parents. The Governor was born near Boston, in 1753, and from the means and fashion of his family, was indulged and pampered with *choicest* viands for the first seventeen years of his life, with the exception of the four last of coarse College fare; water, however, was his usual beverage, though at College he sometimes, rarely, drank from one to three glasses of wine. At seventeen he commenced sailor, and to the revolutionary war of his country, 1775, was continually changing his clime from the latitude of 50° to the equator—sometimes faring sumptuously, but generally confined to coarse food, salted meats, &c. with a small quantity of grog; for it was always his intention to be temperate. With the war he turned soldier, and for its first five years he was a company officer, exposed to all the privations and sufferings of a too frequently half-naked, half-starved army, making winter campaigns in the middle states, and sometimes destitute of tents and blankets. The residue of the war he was in the family of a general officer—not much more favourable to his general health; for under the circumstances of his troops, it was a life of inanition or repletion—feasting and fasting, but most commonly the latter. At the close of the war, after three years of *sober* amusement in York and Boston, he migrated to the North-Western Territory, as a civil officer of government, and (save one, the unfortunate campaign of General St. Clair, where he was wounded, and for ten days exposed, at an inclement season, without either great coat or blanket) endeavoured to *nurse* his constitution as much as comported with the duties of fre-

quently visiting the different parts of the extensive territory, from lat. 37° to nearly 47°, frequently in a state not well adapted to the invalid. His general residence from 1786 to 1798, was at Marietta, lat. 39° 24′, or Cincinnati, lat. 39° 3′—climate subject to great and sudden vicissitude; the thermometer frequently up to 96° in summer, and in winter sometimes 17° and 18° below the cypher. In June of 1798, he was ordered to establish a Government for the United States in the Mississippi Territory, and arrived at Natchez upon the first of August, *where* he has generally been stationary. Two visits to Boston of nine months each, in 1801 and 1806, (whence he returned in winter) seemed to aggravate his arthritic complaints. The long summers of Natchez are propitious to him; but the vicissitudes of winter too frequent and too great—its latitude is 31°, 34′, and extreme height of the thermometer 96°, seldom above 93, and not many days in summer so high. In winter it is not unfrequently as low as 25°, and twice or thrice in fifteen years has been as low as 10° and 12°. Governor Sargent's first attack of gout was in 1777, in a very active campaign: it was in the joint of the great toe—acute pain and inflammation for four hours, succeeded by considerable swelling of the part, but in less than twenty-four hours from the commencement it was over, and he had the free use of his foot. The second attack was not until April of 1780, and preceded by great nausea, total loss of appetite, and violent pain in the back of the head, continuing for seven or eight days; during which he was in military service almost constantly on horseback. Suddenly the pain left his head, his appetite became voracious, was freely indulged, and in one hour the knee became affected by gout, which as suddenly passed to his foot, with such extreme pain and sensibility in the whole leg, that he was constrained to cut his boot therefrom; and, from the middle of April to the first of September, during all which he was in garrison, he was very seldom able to wear even a cloth shoe, or to walk though assisted with a cane, and not unfrequently confined to his bed for whole days. During this paroxysm, he was frequently afflicted with distressing strangury. In September the division of the army to which he was attached being ordered to take the field, he drew on a pair of very large boots, and mount-

ed his horse, when the pain in both feet becoming great, he dismounted at a very cold spring, and immersed them (with boots) for some time, till he found his knees stiffening, when again mounting his horse, and taking violent exercise through the day, he experienced no more gout for many months. He considered this a very dangerous experiment, but his duty required it. Late in the winter of this year, he was attacked with very acute and violent pain in the left side, which was treated as pleurisy; for more than three weeks he was confined to his bed, and so soon as he was able to set up, had a gentle paroxysm of gout in the feet, which induced him to believe it had been gout *ab initio*. From this time to 1787, he had one or two very regular fits of gout in his feet every winter, confining him from two to four weeks, and very afflicting. Monsieur Emerigon's letters from Martinique, with some bottles of *his* prepared tincture of the Gum Guaiacum, were then put into his hands, which he used, *agreeably* to *order*, for several years, making his diet very simple, with water for his beverage, and was almost wholly free of gout till May, 1791. The preceding autumn he had passed in the Illinois, a country full of innumerable ponds of stagnant waters, when there was a prevailing fever very fatal to the advanced in life and children. He was some short time indisposed there, but obtained health enough to commence a journey to Philadelphia, frequently relapsing upon the way and in the city: he seemed to be brought to the very verge of the grave; his debility was extreme; nor bark, nor iron, or any of the medical tonics, could restore health, or prevent the constant recurrence of febrile symptoms. In this situation he was prevailed upon, by a medical friend, to depart from his water-drinking system. Two or three glasses of genuine wine, and an occasional glass of porter, in little more than a month gave him high health, and a degree of corpulence he had never known. In such state he was commanded *speedily* to repair to the North-Western Territory, then at war with the Indians, and descend the Ohio to Cincinnati, in an open boat, an inclement March, and the river full of ice. In May an attack of gout commenced, and continued, with very little intermission, either in feet, knees, hands, or elbows, to the month of August, aggravated no doubt from the *absolute necessity* of exposure, for he was the Ad-

jutant General of General St. Clair's army, preparing for an arduous expedition. This was *his first* attack of gout in hands or arms. To August he was in flannels, and upon crutches, but then in health enough for the due discharge of his duties; and though wounded November the 4th, and deprived of all his baggage, without even a blanket to cover him for ten days, till the return of the army to Fort Washington, *he* experienced no more gout until the January following, *when* he suffered for a week pain in the dexter testis,* *which* he believed to be an arthritic affection. It was swelled to more than twice its natural size, and reduced by cold applications, and gentle laxative medicine. In all the residue of 1792 and 93 he was very free of gout, generally in much exercise, on horseback or on foot, and in the latter part of the *last* year, and the early part of 94, he made a journey to Philadelphia, *where* he suffered much in feet, hands, and elbows, in a paroxysm of several months continuance. In the winters of 1794, 95 and 96, he suffered from gout in the limbs before named, in paroxysms seldom of less than a month's continuance.

In 1797 it was his misfortune again to *breathe* the autumnal air of the villages of Kaskaskias and Cahokia, in the Illinois country. Fevers were more rife and more fatal than in his former visit; almost all the old people, and most of the young children, were victims; he shared in the general malady, obtained a state of convalescence, relapsed and re-relapsed, effected a return to his own home at Cincinnati in the month of December, and early in 1798 was affected by a dull and distressing pain from the clavicle to the bottom of the sternum, attended with nausea and superabundance of acid in the stomach. Meats, liquors, even equal quantities of brandy and water taken into the stomach, were almost immediately returned as sour as lime-juice, and scarcely any thing was retained *save* sound porter. This state of body continued, and generally with most obstinate costiveness, to and during June and July, in a voyage down the Mississippi, under a vertical sun, to Natchez, *where* he arrived the 1st of August. Saline

* One month antecedent he was thrown upon the pummel of the saddle in leaping his horse, and suffered severe pain, though for half an hour *only*.

preparations were resorted to, to correct the acidity, and the most drastic cathartics to procure evacuations. The discharges generally resembled the boiled shreds of parchment, and the intestines seemed fully excoriated. For a week after his arrival, his life was despaired of; but in sixteen days he was able to enter upon duty. For months the whole alimentary canal was painfully sensible to every liquid above or below blood heat. Swelled feet and legs supervened this attack of gout, which, however, soon went off, and he had no *more*, in any shape, till the winter of 1799; in that and 1800, he had very painful gout in feet, knees, hands, and elbows, each paroxysm three or four weeks continuance. In the spring of 1801 he made a sea-voyage to Boston, returning in the winter by the Ohio and Mississippi. At Pittsburg, for six weeks, part of October, and all November, he suffered much more from gout than at any former time; not only feet, knees, hips, hands, elbows, and shoulders were affected, but also the occiput, the whole course of the cervical vertebræ and scapula. Most of the time he was confined to his bed, not able to turn therein without assistance, and helpless as an infant. In 1802--3--4--5 and 6, he generally experienced two annual and severe fits of gout; one in the winter, the other commencing in July, and each continuing nearly a month, and some years light attacks at various times and seasons. In May of 1807, he made another water passage to Boston; passed suddenly from the heat of summer to the cold of a northern spring; was seldom free of painful gout, either upon the passage, at Boston, or upon his way home, *where* he arrived in December. Upon this visit, meeting with Dawson's cases of gout and rheumatism successfully treated by guaiacum, *again* commenced its use, agreeably to the receipt of Mr. Emerigon, and he thinks with *some*, though not very great advantage. Its nauseating and cathartic effect never *wore* out; but he gave it up for a spirituous tincture of phytolacca, *which*, after a trial of five or six months (two small wine glasses per day,) without *any* sensible effect, was also given up. In 1808--9--10 and 11, he suffered much from gout—seldom less than three or four paroxysms in the year—generally more evidently increasing in number and force; all the limbs, head, vertebræ, and about the rectum and stomach sometimes affected; knees

having their full share in every attack—arthritic concretions at the rotula and head of the fibula, and the *latter* enlarged and of extreme sensibility. External applications of warm oil, poplar leaves, (liriodendron tulipifera,) oil skin, and steam have been useful, especially the latter; but having only such general apparatus as is found in every family, it would not *every where* be applied; laudanum, of which very free use has been made, has seldom produced sleep, but always composure in the most excruciating pain; it seems however to have protracted the paroxysms, injured the head and whole nervous system, and been succeeded, in sleep, by violent and distressing subsultive affections of limbs and whole body. In January, 1812, he commenced his experiments with Eau Medicinale de Husson, but possessed only of three-fourths of a bottle, or full doze. In the preceding October, November, and most of December, he had been much more free of gout than usual. On the 29th of the last month he was attacked by gout in the middle finger of the right hand, continuing for two days with much pain. On the 2d of January it had considerably abated, but the whole hand was inflamed, and swollen, with gout upon both sides of the body, near the lower ribs—at bed time the gout also attacked the right knee, *so forcibly*, he was unable to walk, and he had a most restless night. On the following morning he could not put his feet to the floor—was affected also in both wrists, and apprehending a general and severe paroxysm, took half a drachm of the medicine, lay in bed, drank warm mint tea, which produced gentle perspiration, disposition to dose, and mitigation of pain, and irritability consequent on gouty affections. In the evening, however, he was still unable to put his foot to the floor, and took another half drachm of the medicine—had a comfortable night—perspired freely, and at 10 o'clock in the morning was able to walk with crutches—passed the day in his parlour—several loose stools, some nausea; perspiration continued, though the themometer was at 34° and 44°. Upon the evening of the 4th, took the residue, half drachm; up at 10 o'clock, slight nausea and perspiration, walked without crutches, and upon the 6th abroad with good appetite and more than usual health. Upon the days of taking his medicine used no other food than a little

weak beef or chicken broth, and tea in the evening, with a slice of toasted bread and butter.

Upon the 18th, light gouty sensations, increasing to a general paroxysm by the 21st, and continuing to March, with as much severity as that described at Pittsburgh. On this month—destitute of the Eau Medicinale de Husson, "he became possessed of Dr. Moore's ingenious and benevolent letter to Dr. Jones, and prepared *his* medicine accordingly; but *it* had no other than anodyne and diaphoretic effect; it seldom or ever, even in a small degree, meliorated his situation, but produced obstinate costiveness, which required enemas and cathartics to remove; perhaps the hellebore had lost its virtues by age; it was imported from New-York, where it had been many years.

To August he suffered very considerably, but not constantly. Upon the first of this month he received a small supply of Husson's medicine, and upon the 8th, being confined to his bed by severe pain in the right wrist, shoulder, lower part of spine, to the os coccygis, he took one drachm in the evening, which produced several loose stools, with free perspiration the following day, and such diminution of gout, that, though several limbs were affected, he was able to take exercise abroad. This stock of medicine was so small as to forbid another small dose, which might have been useful, and upon the 28th he was *again* violently attacked in the right hand; at midnight took a drachm of his medicine, slept well, loose stools, and perspiration. The following day, able to write in the evening, and pretty free of gout to the 8th of September, when the right hand was again attacked, so painful and inflamed, that upon the night of the 9th, he took his last drachm, with all the usual evacuant and good effects. Very little gout the following day, or till the 19th, when the right hand was again affected, and from the 22d to the 4th of October unable to hold the pen; many limbs suffering; pain not acute, but accompanied with unusual internal heat, in which the tendons of the hands and fingers sympathised—small concretions for several years at the articulations of the phalanges increasing, and appearing upon the extensors of the middle and ring finger of the left hand; the extensors and flexors of thumb, first and little finger of right hand ceasing almost to do their duty.

Gouty matter, indurated *indeed*, appearing ossified all along the upper *part* of the first phalanx of the ring finger of each hand, and rising near two-tenths of an inch. Much of Moore's medicine used, but without other effect than would probably have been produced by opium. Gout about middle of October general and very distressing for a few days—preceded by chill, fever, nausea, and great acidity in the stomach: Gout upon the 2d and 3d of November in left side, with difficulty in breathing; *less* upon the 4th, but limbs always lame, *more* affected, and seldom able to cross the floor without crutches. From this date to the 19th of December, *when* he was possessed of another small parcel of the "Eau Medicinale," he was freer of gout than usual; but being *then* attacked in the right shoulder, and in many of the lower vertebræ of the spine, he took a drachm, which produced but little perspiration, and was not laxative; it however alleviated his sufferings; and upon the night of the 21st and 23d, (on each) he took half a drachm, which were highly diaphoretic, and laxative, producing nausea and total loss of appetite in the succeeding days, and in a measure banished gout to the 15th of January, 1813; though upon the 30th of December he suffered a little pain in bowels, for which he took magnesia and rhubarb, that operated considerably, and produced a small discharge of blood, (probably piles,) and a soreness of the intestines, which was remedied by fifteen drops of laudanum.

Upon the 15th of January, gout in great toe, and apprehensive of a general paroxysm; at midnight took half a drachm of his medicine, lay in bed till noon—refreshing sleep—loose stools and moderate perspiration all the afternoon, though the thermometer was from 25 to 56, and little or no gout. Upon the 19th, considerable gout in knee; at midnight he took half a drachm of medicine, with the effect of loose stools, perspiration, much alleviation of gout, but not removal. Upon the 26th, gout in right hand, very afflicting; took a drachm of his medicine, which produced one or two loose stools, with griping, considerable nausea, total loss of appetite, and but little perspiration; less pain, but hand inflamed, and much swollen. Upon the 28th, lame in both hands, took half a drachm—very little perspiration or laxative effect, but able to use his hands the following evening. Upon the 4th of February, considerable gout in

knee and right hand; took half a drachm of medicine—perspiration, loose stools, little or no appetite, and but little gout the following day. Some gouty sensations in hands and feet upon the evening of the 6th, and took half a drachm, which was laxative and diaphoretic. Slight gout continued, however, the next day, but he was able to use his hands and feet, and free of pain to the 16th, when suffering in left foot, knee, and breast, at 10 o'clock at night he took another half drachm. At 12, pain increasing, took another; and at 2 o'clock profound sleep. Awoke at 8, free of pain, but knee a little swelled and lame—perspiration and nausea; laxative effect continued gently for two days, and head affected as by laudanum.

March the 1st, gout in hands and elbows, took a drachm of medicine, which produced two stools and perspiration, but not as much relief as on former occasions. Upon the 2d, half a drachm, *which* was laxative and diaphoretic, but gout continuing, took a full drachm on the 3d, which produced great perspiration, nausea, retching, and several very bilious stools the succeeding day, with GREAT mitigation of pain. Upon the 14th, at bed time, pain in stomach and right side, the bottom of the ribs, with other sensations indicating a *general* attack; he took a drachm, which produced several loose stools the following day, and very much relieved him. On the 21st, some gout in both feet; took half a drachm; effect, perspiration, one or two loose stools, and very little gout the following day. Upon the 29th, gout painful in right wrist, and unable to use the hand; he took one-third of a drachm of Moore's medicine. At midnight an equal quantity, but no sleep or good effect therefrom, and the following day very costive. Upon the 30th, gout also in shoulder, elbow, and back of the head. At night took half a drachm of Husson's medicine; profuse perspiration, loose stool the following day, and very little gout in the evening. Upon the 2d of April, still suffering a little from gout in hand and arm, took another half drachm of Husson's medicine; perspiration, with loose stools, and alleviation of gout the consequence. Upon the 4th, he took one-third of a drachm, all he had, which produced considerable perspiration through all the following day, with one or two loose stools, and less of gout; but hand continued lame, and medicine was exhausted. Upon

the 14th, he was confined to his bed; suffering extremely in almost every joint—stomach, bowels, sides (about the diaphragm,) throat, and back of the head—unable to move his hands or feet, or turn in his bed, without assistance, for a full month. Inflammation and small tumours in the right heel, which suppurated and discharged a small quantity of fluid gouty matter. In this, and almost every other *long* attack, gout reiterated the rounds of every articulation of the bones, less in force however at each succeeding visitation. At this time, as in former paroxysms, when there was none of Husson's medicine, recourse was had to Moore's, but never alleviating except as laudanum, and always with the pernicious effects of that medicine. For the affection of the throat a blister was applied with advantage, just above the clavicle. A blister was also applied to the little finger of the right hand, the flexors being much contracted, but without any good effect. On the 14th of May, though extremely feeble in knees and feet, was able to hobble across the room with crutches, to be placed in his carriage and ride out; but continuing to suffer much, and experience fresh light attacks almost every night; and upon the 21st was again confined to his bed—seldom able to leave it, even with assistance, for his easy chair, to the 3d of June, and suffering much in head, hips, last dorsal vertebræ: sometimes in the os coccygis, and a kind of sympathetic spasmodic affection of the rectum. External applications of warm olive oil and laudanum, and poplar leaves, were sometimes useful, and steam, where it could be applied, always *so*. At this date, 3d of June, able to use his pen, and (though with great difficulty, in mounting and dismounting,) take exercise on horseback, or in a carriage, to the last of August, when gout became general and severe; and he was confined to his bed for a fortnight—hips and ilium, as well as head suffered; indeed, about the occiput, there has been continued suffering since the paroxysm of the 14th of April—it has been uncommonly sensible to the touch; reading or writing half a page has produced great exacerbation of pain. The articulation of the atlas and occipital bone, and of the former and the dentata, seem affected with very indurated gouty concretions, and produce (to the ear of the narrator) a grating sound upon turning the head to the right or left. During this attack he lost a little blood, took several doses

of calomel as cathartics, which touched the mouth, and considerably relieved the head. From the middle of September to the last of October, almost every day abroad, either in a carriage or on horseback, and able to read or write without much pain, though not unfrequently experiencing light fits of gout of limbs; and in the use of Moore's medicine, and the before recited external applications, with little or no good effect, however, steam excepted. *This*, it must be repeated, never failed to procure some ease to an afflicted limb. Upon the 27th of October, severe pain in hip, producing lameness; and having a supply of Husson's medicine, took half a drachm; a loose stool the following morning, and perspiration through the day, with some diuretic effect, and nausea—able to walk with crutches, but wrists lightly affected. Upon the 15th of November, pain in head having increased a little, and some gout in ancle, took half a drachm of medicine, which procured a stool and perspiration; not much effect on head, but removed the pain of ancle. Upon the 17th, took another half drachm for the pain of head, and with some good effect, though scarcely operating as medicine.

Upon the night of the 5th of December, having suffered pain in right hand and left hip, for a day or two, so as to cause lameness, took a drachm of the medicine, which produced perspiration, a loose stool, and some alleviation. Upon the night of the 7th, an half drachm—loose stools, perspiration and nausea, with much alleviation of gout—and upon the 9th, usual health save light pain of bowels, probably occasioned by eating fruit. Upon the night of the 19th, acute pain, for a few minutes, at the connection of the lower left rib with the spine, immediately succeeded by gout in left wrist. At a very late hour took half a drachm of medicine, with gentle laxative and diuretic effect; and the following night (gout continuing) another; sound sleep and several loose stools in the next day, with perspiration and nausea; but little gout, and good appetite in the evening, the happy consequence.

In taking the Eau Medicinale de Husson, as well as Moore's medicine, Governor Sargent has always conformed to the rules of Doctor Jones, in drinking warm mint tea during the night—several cups, to the quantity of one pint, and the following day (when he has seldom had appe-

tite) he has taken only chicken or beef tea. In the evening he has generally had a relish to his dish of hyson tea, and a slice of toast, which he has indulged. He has made no general change in his diet. When the Eau Medicinale has not been so laxative as to produce more than one evacuation, it is his rule to take of magnesia, or magnesia and rhubarb, a small portion, within a day or two; and whether laxative or not, he very frequently takes, fasting, a couple of tea-spoonfuls of magnesia, to obviate constipation, which he believes very much predisposes to gout. Since his use of Husson's medicine, he certainly has had severe paroxysms of gout; but till this time he has not had it in sufficient quantity, and before he used it, his more advanced time of life and other matters (which must be obvious,) considered, his gout was apparently *more* severe. It is true, he is now much more a cripple than he was twelve months past; his knees and feet are more injured—he can scarcely hobble without crutches: the gout in head continues, which it was not wont to do—his hands are extremely feeble, and he cannot close the fingers of the right—this hand, which was wounded, (the loss of the first joints of the two middle fingers) has suffered much more than the other, or indeed any limb since gout ceased to be confined to the feet; and almost every paroxysm has commenced *with*, or early affected it, so *that* it is with difficulty he is now able to hold the pen to express his faith in the Eau Medicinale, which he verily believes, had he possessed in quantity, at an early day, might have spared him *many* of the most agonizing tortures, and continued, comparatively, a free use of his limbs to the present date.

Gloster-Place, near Natchez, Mississippi Territory,
December 31*st*, 1813.

N. B. The Eau Medicinale de Husson is a costly medicine, half a guinea at the grand depot in London, and lately it has been sold in New-York at five dollars; but this is nominal. The bottles are so enveloped in paper that the eye cannot determine the quantity, the glass so variable that weight is no standard; and by the ear *only* can *any* judgment be made of the contents. This is seldom correct, and it is believed the purchaser *generally* pays two prices, always one and an half. This, however, is not the greatest evil, for gentlemen calculating implicitly upon the adver-

tisement that bottles contain two drachms each *exactly*, may be deceived, to the great prejudice of the medicine, or *it* may run out under recurrence of agonizing gout in countries where there is no supply. The bottles appear well corked and covered with bladder. *Perhaps* they are never filled, and as the corks do not seem saturated, *or envelope* stained, so it appears to the narrator.

Postscript—I might have added in my account of treatment of gout, that I had applied electricity, in small and great shocks and sparks, and freely *charged* myself upon the insulated stool, drawing off the electric matter from the gouty limbs, by gentle frictions, without any good effect. Cold applications were never made but in the single case recited. Cotton, which has been recently stated to have been useful, has never been so much so as wool. I have often taken garlic fasting in the morning, but can say nothing in its favour.

An Essay on DISEASED TONSILS; *in a Letter to Dr.* FELIX PASCALIS. *By* HORACE H. HAYDEN, *Esq. Surgeon Dentist, of Baltimore.*

DEAR SIR,

A Considerable time has elapsed since I promised to give you the result of my observations on the subject of diseased tonsils. This delay has not arisen from a deficiency of cases in point, nor of such as were completely developed, or characterized, but from a consciousness of my own incapacity to do justice to this, hitherto neglected, but afflicting complaint.

In pursuing the subject, however, it might suffice were I to give you simply a statement of facts as they occurred, free of any comments. But in this, I presume, I should not answer your expectations, and certainly should not obey the impulse of my own feelings.

I shall, therefore, trust to your indulgence in the opinions I may offer, which, should they not carry that full conviction which is calculated to ensure them implicit confidence, will not, I hope, invalidate the cases of facts as stated, as they may be relied on.

Previous to, and particularly since the publication of your memoir in the Medical Repository (Hex. III. vol. i. No. 1.) the subject has engaged my attention with no inconsiderable degree of solicitude: the more so, since I observed, that a marked disposition to premature decay of the teeth was an invariable concomitant with diseased tonsils, and which was confirmed to me in your letter, in answer to my inquiries on that particular. But on this meritorious coincidence of circumstances, in all the cases that I have ever witnessed, I shall not, at present, offer any remarks, although fully satisfied in my own mind of the cause, as it is in a degree foreign to the subject.

Having noticed a number of causes which correspond in almost every particular with those you had described, and published, and being almost daily in the habit of seeing others in some form or other, I was induced, and from the purest motives, to endeavour to call the attention of some of the faculty with whom I was acquainted, to a subject, which, as I considered, was fraught, at least in some cases, with incalculable evils. But in this I failed. I was told that it was a very common thing, and long known, and mentioned in some of the oldest writers; but not as a matter of much real consequence. That this was the case, in part, I very well knew, and shall, in the present instance, make use of those authors, or at least some of them, to prove that it not only prevailed, but is of some consequence. I was even told that cases of tinea capitis, or scald head, sore ears, running at the ears, sore or inflamed eyes, sore mouth and nostrils, eruptive face, &c. &c. were not symptomatic of, nor could arise from a diseased state of the tonsils; for even in a state of ulceration the quantity secreted, if not carried into the stomach, was too small to be likely to produce these effects, even admitting it to be absorbed, which was altogether improbable.

Thus, from the nature of my pursuits, have I been compelled to witness, but too frequently, cases which, when viewed in their probable consequence, were calculated to excite the commiseration of the most obdurate and unfeeling.

Still have I carefully abstained from an interference in what might be considered an inexcusable trespass on my

part, by attempting the treatment of cases which, in strict propriety, did not come within the pale of my profession.

Feeling myself thus situated, and despising the name of *Charlatan*, I have been left to witness, with painful remorse, the fair victims of a *Phthisis Laryngis* approaching their final dissolution, while seasonable relief might, probably, have been had, but for fear of incurring unmerited censure, and the vile epithet of base empyricism.

In the next place, I must beg leave to notice some cases of diseased tonsils, which are mentioned by authors, and which were only considered as symptomatic, and therefore of not much consequence.

In doing this, it is necessary to go back to the time in which it was first noticed, or by whom; I shall, therefore, confine myself to as few as possible.

Bordeux, in his inquiries on the pulse, not only notices this disease or affection of the amygdal glands, but even discriminates the peculiar pulse which indicates this complaint, or affection of the tonsils; and which pulse, though somewhat observed, or combined with the pectoral or the nasal, he calls the guttural.

The cases which follow, and which are transcribed from his work, are not introduced with a view to the pulse, but to show that those glands often contain considerable quantities of morbid matter; that they are often the seat of disease; and that, in all probability, as I shall hereafter endeavour to prove, are purely idiophatic.

Observation 14*th.*—"A man was subject to sore throat, and had suffered already at the age of thirty years, nine attacks, attended with fever and swelling of the amygdal glands, or almonds of the ears. The fourth day the glands of the throat became prodigiously swelled." From hence he proceeds to describe the peculiarity of the pulse. "From the ninth to the twelfth the patient spat a prodigious quantity of mucous matter, somewhat purulent, which appeared evidently to be discharged from the glands of the throat; the disease was terminated by this evacuation.

Observation 16*th.*—"A single woman of forty was threatened with the suppression of the lochia, had a swelling of the throat, in which the amygdals were extremely affected, and which discharged in the last stage of the disease *many small fragments* of a *purulent* kind of *matter*. From

the sixth day to the eleventh, the excretions from the throat were very plentiful."

Observation 17*th.*—"An angina terminated by a suppuration in the amygdal glands.

A person had an abcess in the amygdals, which was lanced, and from which there flowed much matter from the opening that was made." See page 49 of Bordeux on the pulse.

The above cases, and many more which might be added, may possibly be said to have been occasioned by scarlatina anginosa, cynanche, or some other inflammatory affection of the throat, and which generally disappear after the inflammatory symptoms have subsided.

However that may be, the following cases, together with those which have already been noticed, and published by yourself, will, I hope, put the matter beyond a doubt, that this affection of the amygdal glands does exist, and that very generally too, independent of cynanche or angina, and also (contrary to the opinions of many respectable medical characters,) without the least possible influence or symptom of syphilis.

Case 1st.—In October, 1809, waited on Miss Z——, aged fifteen years. On examining her teeth, found a general disposition to decay, and her gums much swollen, though but little or no tartar was apparent on her teeth, and which is seldom on the teeth of persons at that age. Observing a sore at each angle of the mouth, and a sickly countenance, I examined her throat; found both tonsils much enlarged and ulcerated. On inquiry, was informed that she was occasionally subject to fevers, and generally of very delicate health. The glands of the posterior part of the mouth, or of the œsophagus, were very much enlarged, and somewhat the appearance of split pease, but larger.

Case 2d.—The same month and year attended Miss N—— P——, in a professional capacity. Observing her eyes sore and very weak, examined the tonsils, found both ulcerated and enlarged, rough and uneven; and was informed that on the slighest cold they were troublesome.

Case 3d.—October 3d, 1809, waited on Miss S——, who has long suffered from ill health—teeth much decayed—the left tonsil much enlarged and ulcerated.

Case 4th.—On the same day, Mrs. K—— called on

me for professional assistance. Seeing her countenance pale and sickly, and her teeth much decayed, I examined her throat; the tonsils were both very much swollen and ulcerated; the left one seemed perforated with a number of holes, one of which would admit a common sized pea; into this I introduced the blunt pointed probe, as into a considerable cavity. On withdrawing the instrument, it was covered with a yellowish white fœtid matter. In this case no questions asked.

Case 5th.—October 5th, waited on Mrs. G—— professionally. Seeing her daughter, a fine little child of about five years old, with very sore eyes, which I was informed had been in that state a long time, without being able to obtain relief, I was induced to examine her throat: I found the amygdal glands very much enlarged, and both ulcerated.

Case 6th.—October 10th, the same year, Mr. E—— W——, aged eighteen years, called on me for professional aid; found his teeth generally decayed more or less: he observed to me, in the course of the operation, that he had enjoyed but indifferent health for some years, and that he had recently been consulting some of the faculty for a disagreeable enlargement in the orifice of the pharynx. My attention was immediately drawn to the case. On depressing the tongue, I observed a very considerable enlargement, apparently of one of the cervical vertebræ, somewhat resembling an exostosis, and nearly the size of a common watch crystal, and much the same form. I then interrogated him respecting his health. He informed me that he had not enjoyed his health within his memory; that at about eleven years old, he was subject to a kind of herpetic eruption all over his head, which had continued until within eighteen months; that about eight months after its disappearance, this enlargement began to appear, and occasionally to give some uneasiness. The present appearance of his throat was, that the membrane or skin lining the orifice of the pharynx was almost covered with tubercles or phymata, resembling, as before observed, that of split pease: the right tonsil was ulcerated, and had three or four deep sinuses in it; the left one ulcerated and partly divided in two.

Case 7th.—October 17th, 1809, a lady, of the society of Friends, came to me with her son, about nine years of age,

to have some of his teeth extracted. Observing, that not only his infantile teeth, but those of the adult class were going to decay, I immediately examined the tonsils. I found them both enlarged and diseased, and the left one appeared to be filled with a whitish congested matter; the maxillary and cervical glands were also very much enlarged. Some questions were asked relative to his general health. I was informed, that in a number of instances he had been subject to bad colds; at which times he complained of a partial deafness; but that, at that time, he was subject to no other complaint than a disagreeable breaking out of sores from the head and shoulders to the hands, and which (the lady observed) was supposed to be occasioned by once eating too freely of blackberries.

Case 8th.—Observing that the lady above mentioned was deaf, so much so, as to render it necessary to raise my voice considerably to be understood, I inquired of her, how long she had been subject to a deafness? she answered, for some years; that previous to which she had a violent sore throat; that on its subsidence she experienced a partial deafness; that it seemed to increase for some time, and then to diminish in some degree; but on a return of a cold at any time, she felt a slight soreness in the throat, and the deafness sensibly to grow worse during its prevalence, (that is, the cold.) I asked the favour to examine her throat. I found both tonsils in an ulcerated state; the right one appeared to be almost divided in two, and the *arriere bouche* covered with enlarged glands or tubercles.

Case 9th.—October 22d, 1809, a Miss G—— came to have a tooth extracted. Observing a disagreeable eruption on her face, I was induced to examine her throat. I found the tonsils very much enlarged, and covered with semi-transparent blisters, and the glands of the pharynx were also enlarged—her gums extremely bad, and teeth generally decayed, and also weak eyes.

Case 10th.—October 24th, 1809, Miss V——, aged 14, called for professional aid. I found her front teeth much decayed, and also some of the molares. Observed the right tonsil enlarged, and a considerable sinuse in it—the left one very much enlarged and ulcerated.

Case 11th.—The same day, Miss R—— called for the same purpose. Observing a very offensive breath, I exa-

mined her throat, as usual in this particular case. I found both the tonsils covered with deep ulcers, and at the same time her teeth much disposed to rapid decay.

Case 12th.—October 28th, 1809, Mrs. B—— called to have her mouth examined, and for advice relative to her teeth. On examination, I found them generally in a state of decay, particularly her superior front and side teeth. I then examined her throat, and found the tonsils in a diseased and enlarged state, with ulcerated and very uneven surfaces. The glands about the pharynx exceedingly enlarged. Observing that she was somewhat deaf, I interrogated her relative to it. She answered, that it had long prevailed, and that she considered it the consequence of a former bad cold; and that ever since she was sure of being more deaf, whenever she was subject to a slight cold.

Case 13th.—At the same time, came also Mrs. D——, and for the same purpose. I found her teeth in a similar state with the above lady's. Her mouth, though not apparently so much diseased, was far from being healthy; the gums thick and callous, a pale leaden colour, as was also the velum palati and roof of her mouth—her countenance at the same time pale and sickly. These symptoms prompted me to examine her throat. I found the tonsils in a state almost exactly similar with those of Mrs. B——, in case 12th. I then asked her if she was at any time subject to any unpleasant affection about the head. She answered none, except a very *disagreeable* humour, or breaking out behind and about the left ear, which (she said) was occasioned, about two years since, by the application of a blister for the tooth ache, and which has prevailed ever since. It was still red, and much inflamed, and the skin flaking off in large scales.

Case 14th.—October 30th, 1809, waited on Miss B——; her mouth in a very unhealthy state, teeth generally decayed, a circumscribed redness in her cheeks, and the skin coming off in scales—her tonsils in a half wasted, ulcerated state.

Case 15th.—November 3d, 1809, I was requested to wait on Mr. W——, aged eighteen years. On the examination of his mouth, I found his teeth generally going to decay. Observing a very disagreeable eruption, or breaking out in the face, I examined his throat, and, to my as-

tonishment, I found the tonsils enlarged to that degree, that it seemed impossible that any food could pass between them, filling up almost the entire passage to the pharynx. On examining them with a probe, I found them not only ulcerated, but in each several holes that would admit the probe as into a hollow sack, and, on its introduction, the matter would discharge itself by the side of the instrument; and when withdrawn, it was covered with matter as thick as tar, and extremely fœtid. Notwithstanding this apparently diseased state of the tonsils, they were not in the least sore, neither was he sensible of any uneasiness from them.

Case 16th.—November 9th, 1809, waited on the daughter of Mr. F——, aged eleven years. Observing her head covered with tinea capitis, and her cheek and forehead affected in a similar manner, I was led to examine her throat. I found the tonsils both swollen and ulcerated, and the back part of the throat covered with tubercles or enlarged glands, and which were very obvious on the edges of the constrictor fanicum.

Case 17th.—November 10th, waited on H—— C——, aged twelve, in a similar state; except instead of sore head, he had an eruptive face.

Case 18th.—November 11th, waited on Master L——, aged twelve; tonsils very much swollen and diseased; cervical glands enlarged; teeth of the adult set in the most rapid state of decay, so much so, that those which I extracted were not much more than half ossified on the pulp, or the roots were but little more than half formed; and at the same time, the crown of the tooth decayed away almost even with the gum.

Case 19th.—November 13th, waited on Miss B——, who was excessively troubled with pains in the jaws and teeth, which were generally loose and decayed—her gums sore, thickened and flabby; her breath fœtid and extremely offensive. Another circumstance relative to her mouth attracted my immediate attention; there appeared to have been an actual enlargement of the inferior alveolar circle, by an increase of ossific matter, deposited subsequent to the natural formation and completion of the jaw; and that apparently from some morbid cause, as in a real exostosis. This was manifest to any person, who might see that the inci-

sores and cuspidati of the inferior jaw had been thrown forward, from the centre of the anterior circle (for the form of the jaw is that of a semi-ellipsis, consequently contains two different segments of a circle) until their position, in the jaw, was approaching that of the horizontal one; consequently the space between each other was nearly an eighth of an inch. The natural result of this deviation was, that the more those teeth inclined to the horizontal position, the sooner, and more forcible was their action on the front teeth of the superior jaw whenever the inferior jaw was in motion. The result of this *unnatural* interference was such as might be expected; the superior front teeth were, likewise, assuming the horizontal position, not by any diseased action, but by the constant and forcible action of the corresponding teeth of the opposite jaw. The effect of this action is, that her front teeth had assumed almost the position of the upper and lower front teeth of swine. The above circumstances naturally attracted my attention to her throat. I found the tonsils in an ulcerated state, and partly wasted away; the pharynx was covered with enlarged or diseased glands; and rather on the left side of the cervical vertebræ, there appeared a preternatural enlargement, similar to that in case 6th, only not as prominent. I asked her several questions relative to her preceding health. Her answers, among others, were, that for some years since she had been subject to a running from her left ear; that about two years since the discharge had subsided, and that the state of her mouth had become not only worse, but a source of much, and almost constant uneasiness. Perhaps it would be thought, by many, that the above case bore unequivocal marks or indications of syphilis. However that may be, I have every possible reason to believe and be assured, that neither the present subject, nor either of those that I have, or shall hereafter describe, ever had the least syphilitic taint in their systems. And so far from its being the case with this, I have the strongest assurances, from having seen three other cases so exactly similar (except the enlargement in the throat) that I shall forbear to state them particularly, as it would tend to lengthen out the subject, and render it still more tedious. One, however, of a like kind, I must not omit to mention on account of its singularity.

Case 20th.—A Miss C——, aged fifteen, daughter of a respectable merchant in this city, waited on me for professional advice. Observing that some of her front teeth seemed to be changing their position, and to become irregular, (it will be understood by every person in any wise acquainted with the subject, that at the above age, the number and classes of the adult teeth, are full and complete, consequently not likely to change position by being crowded,) on examination I found one of the small incisores of the inferior jaw, on the right side of the centre, or frenum of the lip, and one on the left side, falling forward out of the range of the other teeth, (which she and her sister said were once regular) and also the large incisor on the right side of the superior jaw, and the small one on the left side deranged in like manner. Not knowing what had been their relative position previous to that time, my conclusions at once were, that the length and projection of the inferior teeth, shutting within the upper, had been the sole cause of their derangement; and to shorten the lower ones by filing them down, so that they could not touch the upper ones, was the means most likely to obviate a further derangement. This I accordingly did. About two years after, I was requested to wait on the lady again. On examining her mouth, I was not a little surprized to find that notwithstanding my efforts to the contrary, the irregularity was increasing, and to that degree, that no doubt remained on my mind of its being the consequence of some derangement in the animal economy; and I immediately began to suspect a scrophula.

This increasing deformity excited a considerable degree of uneasiness in the minds of the family, as was fully evinced, by their frequent applications to know if the evil could not be obviated: on the subject of which I freely gave my opinion, but hesitated in acting; as it was necessary, in the first place, I informed them, to combat and remove the cause, before I could think of removing the effect; the former of which (if scrophula) did not come within the limits of my profession.

Some months subsequent to the publication of your memoir on the disease of the tonsils, this lady, in company with her sister, called on me again, and, as before, I found that the teeth had continued to deviate from their first or

natural position, so as to constitute, by this time, a real deformity. And now for the first time, I observed a very obvious and disagreeable herpetic affection on her forehead, and down the side of her face, in the edge of the hair; and which, she informed me, she had been subject to for some years, and at times alternating from better to worse, and vice versa. This awakened my curiosity, and I examined the tonsils, and found them ulcerated and partly destroyed; one of them was nearly divided in two, being only connected by a small ligament, or portion of flesh. Under these circumstances, I discouraged any attempt to regulate those teeth, as under the prevalence of those symptoms, and at her age, it would be not only fruitless, but impossible.

Case 21st.—December 28th, 1809, a lady called on me, with her daughter, to have her teeth examined, which I found in a rapid state of decay. Observing a very fœtid breath and inflamed eyes, I examined her tonsils. I found them both ulcerated and full of congested matter.

Case 22d.—December 29th, waited on a lady at Mr. L——'s, aged about thirty, to extract a tooth. I found her teeth, both above and below, completely in a state of decay. Observing her eyes apparently very much inflamed and weak, and, at the same time, a very offensive breath, I examined her tonsils; found them very much swollen and ulcerated. She was likewise afflicted with an eruptive face; and with all these symptoms there was not the smallest reason to suspect that they arose from any excesses of any kind.

Case 23d.—Also came Miss Ann H——, aged twelve years, to have her teeth operated on. I found them, even at that age, much disposed to decay: examined the tonsils; they were covered with deep sinuses, and partly wasted away. I interrogated her as to her health. She informed me, that at six years old she had a violent cold and sore throat; since which she has been subject to an asthmatic affection, or difficulty of breathing; sometimes partially deaf, and occasionally weak eyes, particularly on taking cold. At ten years old they were very sore; and, at the same time, a breaking out on her face,

1812. Case 24th.—Came to me Mr. S——, with his daughter Anne, aged twelve years. Some time in June,

1811, she took a violent cold, by imprudently putting her feet in cold water when in a heat; it was attended with a very sore throat. After a short time there appeared a breaking out on her feet and legs; and which, in about two weeks, became general over almost her whole body. After some time (the father could not exactly remember how long) these blotches suddenly disappeared, and she was attacked with a violent pain in her bowels. In the course of the winters of 1811 and 12, was subject to disease. In March was so much so as almost to be deprived of hearing. Much troubled with weak eyes, and sores at the angles of the mouth. For six weeks previous to her visit, she had been troubled with a disagreeable breaking out on her head, and which she was then afflicted with, together with a swelling a little anterior to the left ear, which was the cause of their visit to me, supposing it to proceed from a tooth; which I found was not the case.

From the nature of the symptoms which the father described to me, I was induced to examine the state of her tonsils. I found them much swollen and ulcerated; and also containing a quantity of congested matter.

The cases which I have described, and a number less important, that I have omitted transcribing, were, as you may see by the dates noticed, but a little time subsequent to my former communication on this subject; and at the time when every case that presented itself tended only to excite in my mind a greater and more lively degree of interest. Since that period I have witnessed some hundred cases, differing in their characters more or less, from the most mild and simple, to that of the most malignant, and even fatal. But not expecting that the cases, if noted, would be of any further use than for my own gratification, I discontinued the practice of critical investigation, although it might probably have tended ultimately to some useful and important purpose.

Before I proceed to notice any further consequences, arising from, or depending on a diseased state of the amygdal glands, consequences calculated to awaken the sympathies of the most sceptical, and that call for the exercise of talents the most prompt and skilful, permit me to introduce some remarks that will be likely not only to substantiate the facts of those organs being primarily the

seat of disease, but, to convince the most incredulous, that the various symptoms or affections heretofore, and in the present instance described, as almost invariably accompanying them, do depend, in a greater or less degree, on an ulcerated, or otherwise diseased state of these organs.

The first paroxysm of this disease, or affection of the tonsils, whether arising from cynanche, angina, &c. frequently occasions a partial deafness in one, and sometimes in both ears. I have frequently seen cases of this kind, exclusive of those I have mentioned; and from an examination of the state of the tonsils, there was not room for a doubt, on the score of the deafness having been occasioned by the state of the tonsils; and not only so, but that the degree and continuance depends often on them. In this opinion, I am supported by the best authority.

Mr. Underwood, in his work on the diseases of children, although he does not mention the subject of the tonsils, at the same time that he notices the prevalence of deafness in children, yet we are left to draw this inference, viz. that the glands were diseased, from the circumstance of its being the consequence of a cold. He observes, children are frequently rendered deaf, in different degrees, of one or both ears, by very slight colds.*

It is seldom, I believe, that deafness is occasioned by a slight, or even obstinate cold, except that it falls on the tonsils; or, in other words, that they are rendered more or less diseased by it. In this case, no doubt can be entertained, but that the deafness is occasioned by the inflammation in the tonsils; and which, whether excited by angina, cynanche, &c. runs along the eustachian tube to the cavity of the internal ear.

Dr. Wilson observes, that in cynanche tonsillaris, none of the neighbouring parts partake so frequently of the pain as the internal ear. He further remarks, that in many cases the pain is distinctly felt by the patient extending towards the internal ear; and that a degree of deafness which attends violent cases of cynanche, is probably owing to the swelling occasioned by the inflammations obliterating this cavity.†

* See Underwood on the Diseases of Children, vol. ii. 2d edit. p. 49.
† See Wilson on Febrile Diseases, vol. ii. p. 140

Dr. Thomas observes, (in treating the same disease) that in a few cases, small white sloughy spots are to be observed on the tonsils; and in very violent cases there is *complete deafness.**

Here I might content myself, without having recourse to any other author on this subject. But since the remarks of the late enlightened and much lamented Dr. B. Rush come in so opportunely to prove that the organs of the ears frequently participate in, or are affected by the diseased state of the tonsils, I shall with pleasure transcribe them. In speaking of the scarlatina anginosa, which prevailed in Philadelphia in 1783 and 84, he observes, "the ulcers on the tonsils were deep, and covered with white, and sometimes with blackish sloughs." Further, "I saw several cases of sore throat, attended with a discharge from *behind* the ear, and from the nose, &c." Also, "I saw in one instance, a *discharge* from the *inside* of one of the ears of a child, who had *ulcers* in his *throat*, and a squeaking voice."†

There are numerous cases on record, which tend to prove, satisfactorily, that not only a more than partial deafness has been occasioned, and that of long continuance too, by an inflamed and ulcerated state of the amygdal glands; but an obliteration of the internal cavity, a formation of abscesses, which has caused the destruction of the bones of the ear, to such a degree, as to occasion a total and incurable deafness in one or both ears.

The cases which I have quoted may be objected to, as having no bearing, or relation with the ordinary cases of ulcerated tonsils, and the variety of other symptoms said to attend them. As one is the result of a very high grade of inflammation; the other is, in general, the effect of a common cold. However that may be, the results are in both cases pretty generally the same. In fact, we are taught, by the opinion of this truly eminent man (Dr. Rush), to believe, that they are one and the same disease; that is, cynanche tonsillaris—for he observes, "there is *scarcely* a *disease* in which there is not a *certain number* of *grades*, which mark the distance between health and the lowest specific deviation from it."‡

* See Thomas' Modern Practice of Physic, p. 101.
† See Medical Inquiries, vol. i. 2d edit. p. 139 and 141.
‡ See Medical Inquiries, vol. ii. p. 96.

I do not, however, feel myself inclined, a priori, to subscribe to this opinion in the present case; since, if ulcerated tonsils constitute one of the grades of cynanche tonsillaris, it is a disease of a very long standing; and one that, upon a moderate calculation, at least three-fifths of the people inhabiting the latitudes from 35 to 45° are subject to; and that in some instances for many years. Besides, an ulcerated state of the tonsils of long continuance, frequently terminates in actual phthisis, as I shall endeavour to prove hereafter; a case that does not occur, as I recollect, from either scarlatina anginosa, cynanche trachealis, or tonsillaris, or at the immediate subsidence of either.

I shall next offer a few remarks on the probable cause of the deafness in those cases; and also, of its long continuance, and sometimes sudden and spontaneous intermission.

The first paroxysm of inflammation that prevails in those organs, whether excited by angina, cynanche, &c. or common cold, is doubtless the cause of deafness, when its prevalence commenced at, or a little time subsequent to that of a sore throat, swelled or enlarged tonsils, hoarseness, &c. This, it is believed, is owing to the inflammation extending along the eustachian tube to the internal ear, obstructing thereby the free passage of that organ. Dr. Wilson observes, that "there is reason to believe, that the inflammation *frequently* spreads along the eustachian tube, &c.*" But, on the subsidence of the symptoms of inflammation, or sore throat, we might reasonably expect a discontinuance of these unpleasant symptoms in one or both ears, which is sometimes the case, as in angina, cynanche, &c. but by no means so in many others of a much more simple character, and far from being likely to excite suspicion, and much less so, any serious uneasiness. Here lays the source of the too fatal error into which many have fallen, and if not fallen, are left perhaps, for the remainder of life, in ignorance of the cause of the mutilated organs of hearing, and even that of vision.

The result of an inflammation in those glands is often a complete or partial suppuration. If complete, as I term it, there is a spontaneous discharge; if not, a great part of the contents issues out, the quantity of which is often

* See Wilson on Febrile Diseases, vol. ii. p. 140.

considerable, "and sometimes of an almost intolerable taste and smell."*

In a partial suppuration, such as occurs from common or slight colds, an evacuation, I am inclined to think, does not take place, as in common cases of abscesses or other swellings. The thinner part of the matter formed seems to be gradually discharged by the natural orifices or ducts of the gland; and so highly acrid or sceptic is this matter thus formed, and which is rendered the more so the longer it is retained, that it excoriates the little lacunæ, until each one becomes an ulcer, that is daily corroding and enlarging its orifice.

In many instances, if not in all, it seems that the grosser part, the matter becomes by degrees inspissated, and assumes the colour and consistence of hard cheese curds; and in this state it possesses a degree of fœtor, that almost defies a parallel. Being thus retained, the natural secretion of those glands becomes vitiated, and assimilates with the morbid matter, and thus contributes not only to the wide spreading of those corroding ulcers, but, to the distruction of the little columnæ, or partitions of the little cells, until they are at length united in one cavity, which, in form, may be compared with that of a green elastic bottle, or Florence flask, and, at the same time, nearly filled with the above fœtid congested matter.

It is this highly septic substance that keeps up a constant degree of inflammation along the eustachian tube, or in the internal cavity of the ear, after the subsidence of the first grade of inflammation, and the patient is relieved from all soreness and every other uneasy sensation in those glands. In this situation, the patient remains, subject to this afflicting calamity for a number of years, occasionally alternating from better to worse, according to the degree of inflammation which may be lighted up in those parts, by the prevalence of a mild or more obstinate cold.

In some cases the deafness subsides, and hearing is restored; and an inflammation appears behind the ear, or ears, which terminates in an obstinate running sore of long continuance; sometimes in the hair, in the nose, at the corners of the mouth, on the face, neck, &c. If any applica-

* See Wilson on Febrile Diseases, vol. ii. p. 142.

tions are made use of to dry up or heal these sores, it is ten to one but it returns upon the organs of the ear, thus alternating or shifting from one part of the body or head to the other.

About the beginning of October last, while in a neighbouring county, I was requested to wait on a family for professional purpose. On visiting this family, I observed in conversation, that the lady of the house had not only weak eyes, but ulcerated tarsi. However, I asked no questions. In operating on the teeth of her little daughter, aged about twelve, and while her head was thrown back for the purpose of filing her front teeth that were decayed, I observed a disagreeable sore in each nostril, and which was so much so, that she complained when I raised the upper lip. I then asked the lady how long the child's nose had been in that state? She answered that the sores were of long continuance. Seeing them, and the teeth of the adult decayed so early, I immediately examined her throat. The tonsils were both ulcerated, rough, and much swollen. In speaking of the subject to the mother, it afforded me an opportunity of asking her how long she had been afflicted thus with inflamed eyes. She answered, for a number of years. While conversing with her, I observed that her cap, (whether accidentally or not, I cannot say,) was raised on one side so as to expose near one half of her left ear, behind which I plainly saw a running sore. I did not hesitate to ask her, how long the affection behind her ear had prevailed. Though apparently a little mortified, she informed me that it was of a like continuance with that of the eyes—and that any attempt to suppress it was attended with very unpleasant sensations of deafness, or indistinct sounds in the ear. I then asked leave to examine her throat. Both tonsils were ulcerated and considerably wasted away.

In some instances the deafness prevails a number of years, and during which the ulcers in the tonsils continue to spread, until two or more meet into one, or are only separated by a small portion of cellular substance. In this state, and by some effort to swallow or otherwise, the congested matter, for a long time retained in the gland, is dislodged, and is either swallowed or discharged from the mouth, and an almost immediate change takes place for the

better in the tonsil, and it becomes healthy. On this change taking place, if deafness prevails it will probably soon subside; and again hearing is, without any application or physical means, restored to the patient.

Such were, doubtless, the cases which Mr. Underwood mentions, although he does not attempt to explain the cause of the cure, any otherwise than by saying, that "nature, however, sometimes effects the cure; and children, after having been deaf for several years, suddenly recover their hearing, especially females.*"

But, so long as these glands remain in a diseased, ulcerated state, which they often do without the least symptom of soreness or uneasiness, and at the same time containing this highly septic congested matter, so long we may expect the prevalence of some one, or all of the symptoms before described, as accompanying the different cases therein mentioned; and most probably too, by the absorption of this morbid matter. This, by some, is even doubted; but I will endeavour to render the subject less doubtful, not by any experimental knowledge of my own, but by remarks and opinions coming from such highly respectable sources, as, at all times, entitles them to the most implicit confidence and belief.

How far the five cases of ulcerated tonsils, described by Mr. Abernethy,† depended on syphilis, is not for me to say, since his excellent work speaks for itself on this subject; but certain it is, agreeable to his own statement, that the copper-coloured spots which appeared on the face, neck, and arms of some of the patients, and the eruptions in the hair of others, were almost simultaneous to the appearance of ulcers on the tonsils; and that the disappearance of those symptoms was likewise nearly the same.

It is further observed by the same author, "that local irritation may produce a great disorder of the digestive organs." "Now, if vehement local irritation can produce so violent a disturbance of the chylopoietic organs, it may be expected that a *less degree* of a *similar cause* will produce *slighter effects* of the *same nature*."‡

* See Underwood on the Diseases of Children, vol. ii. p. 53.
† See Mr. Abernethy's Surgical Observations, p. 116 to 128.
‡ See Mr. Abernethy's Observations on Health, p. 15.

He further observes, " Some of these sores are formed in the absorbent glands; in which case the gland having first been indurated, suppurates and bursts, and ulceration ensues. When this circumstance takes place, in an absorbent gland of the neck for instance, another ulcer may form in the manner above stated, in the skin and subjacent parts, *without any gland* being *involved in it.*"

Several other cases, very much to the point, might be adduced, as contained in that excellent work, and particularly the one relating to the gentleman's servant, who was treated for a "bad ulcer in his neck," and which was nearly healed, when, in consequence of being exposed to rain, he took cold; subsequent to which he complained of sore throat, and an ulcer of the size of a shilling appeared in each tonsil. The patient again took cold, which was attended, a day or two afterwards, with an erysipelatous inflammation on the side of his face, opposite to the sore, and which afterwards spread to the other side of his face: the eye-lids became tumefied to such a degree, that he was unable to open them.* But, as this was considered a consequence of some derangement in the chylopoietic viscera, I shall not offer any comments. See also case 25th, with Mr. A.'s observations on deafness, &c. p. 117.

(To be continued.)

On the Decomposition *of* Animal *and* Vegetable Matter. *By* Thomas D. Mitchell, M. D. *of Philadelphia.*

THE discovery of an agent so important as oxygen gas, led philosophers to speculate largely on its importance in physical phenomena. The processes of combustion, fermentation, and putrefaction, were all considered as necessarily connected with oxygen gas. To effect combustion, all now agree that the presence of oxygen is necessary; but it has been much disputed, whether fermentation and

* See Mr. Abernethy's Observations on Health, American edition. p. 82.

putrefaction cannot be carried on independently of oxygen gas; that is, to a certain degree.

It has been conjectured, that a fluid mass could not undergo the fermentable process, without the influence of external oxygen.* Again, it has been declared, that external oxygen is not essentially necessary.

That animal matter will putrefy without the agency of external oxygen, is a fact of which I no longer doubt, since I have proved it in the most decisive experiments, and have seen similar experiments, attended with like results in the hands of others. The experiments were made with mercury, and all possible contact of air was prevented. In every experiment the meat was entirely putrefied. I concluded, that in all these cases, putrefaction must have resulted from a *destruction of the equilibrium subsisting between the component parts of the meat;* this destruction depending on the loss of vitality.† These experiments were made in the summer of 1812. Water, it is said, will exhibit phenomena not unlike those of putrefaction, under circumstances somewhat similar to the above. It would appear from the following observations of a writer in 1792,‡ that this putrefaction is not affected by any external agent. "*La cause de cette corruption de l'eau (de son impureté, nebulosité, et pourriture,) c'est l'esprit qui y est implanté, et qui, par son mouvement perpetuel, produit dans l'eau une chaleur imperceptible.*" What I have styled the "destruction of equilibrium," &c. is nearly the same with his "l'esprit qui y est implanté." He says further; "*On peut voir evidemment et conclure que cette eau renferme en elle un esprit ou un être actif; car l'on pourroit prevenir la separation et l'alteration, s'il n'y avoit dans cette eau quelque chose d'actif, qui peut l'occasionner!*"

Thus it is evident, that the opinion prevailed long ago, that bodies might undergo changes merely by an alteration of their component parts, produced independently of external agents. I am firmly of opinion, that exposure to heat is alone sufficient to induce the process of fermentation, without calling to our aid the agency of external

* See Nicholson's Journal.

† Lavoisier has attributed the effects of fermentation to the cessation of the equilibrium between the component parts of the bodies submitted to the process.

‡ La Nature Devoilee.

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Thus it is evident, that the opinion prevailed long ago, that bodies might undergo changes merely by an alteration of their component parts, produced independently of external agents. I am firmly of opinion, that exposure to heat is alone sufficient to induce the process of fermentation, without calling to our aid the agency of external

* See Nicholson's Journal.

† Lavoisier has attributed the effects of fermentation to the cessation of the equilibrium between the component parts of the bodies submitted to the process.

‡ La Nature Devoilee.

oxygen; and that the maxim of Beccher, *stricta closura et vasis impletis, fermentationem totaliter impedit*, is not true. Nevertheless, I have no doubt, that in some cases the free contact of air may be necessary to make the fermentable process complete. But I hold it to be a truth, that fermentation, like putrefaction, may result simply from a new arrangement of the particles of a fluid mass, produced by heat alone.

To prove that fermentation will ensue independently of the aid of oxygen gas, (that is, oxygen from without,) I made a few experiments, which, together with their results, I shall now state in as brief a manner as possible. I took a quantity of the juice of ripe currants, which I diluted with an equal quantity of water, and afterwards sweetened with sugar: to the whole I added a small quantity of ardent spirit.

With the fluid matter, thus prepared, I filled an eight ounce phial completely, having attached to it a syphon, the diving leg of which was much larger than the issuing leg. Having inverted a small phial, filled with water, over a vessel filled with the same fluid, I passed the issuing leg into the inverted phial, the diving leg having been inserted in the eight ounce phial. To exclude the air from the latter, I closed it perfectly with sealing-wax. I expected that if fermentation did result, some gaseous fluids would pass over, and by producing a fall of the water in the inverted phial, would indicate that fermentation had commenced.

2dly. I took a stout stoppered bottle, and having nearly filled it with the fermentable matter already mentioned, I replaced the stopper, and confined it by means of strong leather tied over it.

3dly. Supposing that if any decomposition took place, carbonic acid gas would be evolved, I determined to make use of such means as would show whether this gas was evolved, and thus decide relative to the occurrence of the fermentable process. For this purpose, I passed the issuing leg of a syphon (in form of the letter U) into a bottle half full of clear lime-water; the diving end, as in the first experiment, being placed in a bottle filled with the fermentable fluid; after this, I made use of sealing-wax as before, to exclude the external air. In this experiment the evolution of carbonic acid could not fail of being detected.

The bottles, thus prepared, were exposed to the heat of the sun on the 21st of June; but an accident happening to the bottle used in the second experiment, another was treated in the same way, and placed with the other bottles on the 24th of June. The thermometer, during the experiments, fluctuated between 76° and 90°. In all the bottles containing the fermentable matter, an intestine motion was obvious in the course of four or five days.

On the 21st of July, the bottle in experiment No. 2, was opened, and this was attended with a free escape of carbonic acid gas, in bubbles, as from mead and other carbonated fluids. It may be observed, that there was an obvious decrease in the bulk of the fluid several days before the bottle was opened, owing probably to the condensation of the carbonic acid gas formed. The fluid possessed considerably the taste of currant wine, and had certainly undergone the fermentable process. The water in the inverted bottle, used in the first experiment had been displaced three or four times by the ascent of gaseous matter. This, on examination, proved to be carbonic acid gas. The lime water in the third experiment, was quite turbid, and a copious precipitate had fallen to the bottom. On examination of the fermentable matter, it was found to be nearly similar to that in the second experiment.

The fermentable matter in the first experiment was still left as at first, and the inverted phial was found frequently filled with gas, which proved to be carbonic acid gas. Having suffered the fermentable matter to remain until the 1st of August, I then opened the bottle containing it, for the purpose of examination; and it was obvious that the matter had undergone the process of fermentation.

These experiments were made in the country, and I had not apparatus sufficient to collect and examine minutely all the gaseous matter evolved. But I was able to test the production of carbonic acid gas without difficulty; and this is the most essential gaseous fluid evolved in fermentation.

From the above experiments I infer, that fermentation did ensue. This must have arisen from the destruction of the molecular arrangement in the fluid, and the subsequent combination of the particles in a new form. That decomposition did ensue, is evident not only from the intestine

motion which was obvious, but also from the copious evolution of carbonic acid gas.

That the external air, or its oxygen, had no influence, is plain from the fact, that they were entirely excluded. It will, however, be said, that some agent must have been present, to produce even a tendency to a destruction of the equilibrium subsisting between the component parts of the fermentable fluid; an effect which has generally been considered to result from the free access of air. Such an agent must have been present, for the fluid was subjected to an average temperature of 85° of Fahrenheit. This alone was sufficient to destroy the elementary affinities, and consequently to effect the formation of new compounds.

The putrefaction of animal matter secluded from external air takes place in six or eight days; and the fermentation of fluid matter is more tardy, only because a more powerful attraction subsists between the elementary particles of the fluid than of the solid matter.

For my own part, I consider the above experiments as conclusive; but I am still open to conviction, and hope that some person, who is desirous of investigating physical phenomena, will examine the subject with more care than I have done; and thus establish a correct theory of the fermentable process.

REVIEW.

Annual Address, delivered by appointment before the Society for the Promotion of useful Arts, at the Capitol, in the City of Albany, on the 3d of February, 1813. *By* THEODRIC ROMEYN BECK, M. D. &c. 8vo. pp. 44. *Albany. Websters & Skinners.* 1813.

SO much information is embodied in this tract, that it deserves to be generally read. The Society for whom it was composed ought to have been very much obliged to their orator for having pronounced before them such a solid and comprehensive discourse. The theme he has selected and improved, is the mineral wealth of the country. From the best sources, he has collected facts. He has disposed them in an orderly manner; and he has shown how extensive and important is the progress already made in the improvement of our native earths, metals, and salts, for the purposes of science and the arts.

Among other topics discussed by Dr. Beck, are the domestic ores of iron, with the extraction of the metal, and the preparation of steel and vitriol;

Intelligence concerning copper, as discovered in our parts of North-America;

Notices relative to the zinc that has been found among us.

The leading particulars are stated on the manufacture of tinned iron-plates into a thousand different utensils.

Brass, and its various applications, are brought before the view of the society.

He mentions antimony too, but this has not as yet been found in our mines. Copper has been afforded with a very sparing hand. The zinc we use is wholly imported from foreign ports. And tin is equally a stranger to our mines. The same may almost be said of cobalt; the quantities are so small which the United States have hitherto afforded.

The extreme rarity of silver is mentioned; as also the parcels of gold that have been found within a few years;

and the supplies of manganese, and some other metallic productions.

Just stress is laid upon the American ores of lead. In these the land is rich. We do not observe that the orator has said any thing upon the beautiful white ore of lead from Sheffey's mine, near Abingdon, in Virginia.

Here we stop to state an occurrence of a very peculiar character in the history of man. It is the transformation of a band of savage hunters into manufacturers, without passing through the pastoral and agricultural stages of society. The occurrence is one of the most memorable that marks the advances of the human being from rudeness to refinement. Writers who record truly the events of history, may perpetuate on their pages how the Sioux abandoned the chase of the bison, to become smelters of lead. The galena, which constitutes the wonder and wealth of the Missouri Territory, extends far to the northward. Veins of the ore are found beyond the river *Aux Moines*. After various interruptions, the seams of metallic matter appear again above the falls of Saint Anthony. Masses of the saturnine composition are plentiful higher up than the junction of the Ouisconsin with the Mississippi. Lead presents itself to the hand of him who will collect it. The Sacs, Renards, and other tribes of the aborigines inhabit these tracts of country. Their numbers are too great to be supported comfortably by the flesh of wild animals. Hunting has become a poor and precarious business. But from the traders settled at the *Prairie des Chiens*, every necessary could be bought that hungry natives could pay for. From one of these travelling merchants, an Indian could as easily purchase food as any thing else, if he could but furnish an equivalent. The distresses of the savages induced them to carry the crude sulphuret of lead to the factories, in exchange for merchandize. This, however, answered the purpose but for a short time. The receivers were obliged to extract the metal with trouble and expense, and often with loss; they were resolved to take no more galena in payment, and ordered the Indians to smelt it for themselves. They have done so. By a simple process they melt out the metal—The traders gladly receive the pigs in barter—The wants of the red men are supplied from their mines. These they cherish as the most valua-

ble of their possessions. The beasts of the forest are of trifling value in comparison of this mineral treasure; and thus, by a peculiar concurrence of circumstances, a race of hunters has changed to a society of metallurgists.

But to return from this digression. Dr. Beck proceeds to speak of the painters'colours, coal, salt, alum, sulphur, and salt-petre of our country. In the survey of these, of the various earthy, and other productions of the land, he has shown a happy union of the chemist's art with the naturalist's observation.

A performance so reputable to the author and to science is worthy to be perused by every lover of internal improvement. Dr. B. has acquitted himself worthily; and he merits commendation for the candour with which he refers to his authorities. We cannot conclude our remarks on this publication, without an animadversion on an advertisement contained in the appendix. The mineralogical committee of the society for the promotion of arts are respectfully informed, that regular instruction by lectures has been given for several years in geology and mineralogy at New-York: that extensive collections of fossils, domestic as well as foreign, have been made by several individuals; and that such cabinets are rapidly increasing. And we refer these gentlemen to the scientific and professional journals, for the evidence that a full and respectable portion of the very knowledge they are seeking to promote, is regularly presented to the public by a distinct body of labourers in the same cause, within the aforesaid city.

A Gazetteer of the State of New-York, carefully written from original and authentic Materials. Arranged on a new plan. In three parts, &c. With an accurate Map of the State. By HORATIO GATES SPAFFORD, *A. M.* 8vo. p. 336. *Albany.* Southwick. 1813.

THE extent of New-York is so considerable, that the distance from Long-Island to Niagara, is equal to the distance from the same place to the confines of North-Carolina. In its greatest breadth from north to south, it is

almost equal to five degrees of latitude; and the greatest length from east to west amounts almost to eight of longitude. Its position between the equator and the pole corresponds to that portion of Europe situated between Madrid and Naples on the one side, and Bordeaux and Mantua on the other. Constantinople, Samarcand, and Pekin, are nearly on the same parallel with the city of New-York; and the country reaching from the former to Ismael and Oczakow, and from the two latter, five degrees north to the regions of Turkistan, and the lands frequented by the Mongols and Tartars, present to us geographical situations in Asia analogous to our own.

The physical aspect of New-York is diversified by the Atlantic ocean, its sounds and bays; by the seas of Ontario and Erie, and a great number of lakes; by mountains, hills, and plains, and by rivers, cataracts and æstuaries.

Its civil condition is equally worthy of regard. There is beheld the beautiful mechanism by which the whole domain is divided into counties, with an exact organization. The counties are subdivided into towns, which are corporations of the freeholders and inhabitants, enjoying certain privileges vested in them by law, for their own convenience and happiness. Parishes, being ecclesiastical sections of towns and counties, have no existence among us. But towns are parcelled out into militia districts, for the purpose of defence; into school districts, for the sake of education; and into road districts, for the improvement of the highways. So, a multiple of counties and towns, at the direction of the legislature, forms a district for the choice of representatives in congress, or of senators in the state.

Forty-seven counties have already been erected; and the number of towns, with distinct names, social existences, and corporate powers, now amount to about five hundred. Many of these contain post-offices, villages, court-houses, manufactories, wonders of nature, and other things of note. All these circumstances render our topography intricate, and too burthensome for the memory. The surface of land and water lying within the boundaries of New-York, is computed at 46,085 $\frac{1}{2}$ square miles, or 29,494,720 acres. The area of England and Wales is calculated to be 49,450 square miles. Surely then, a sovereignty with a dominion so considerable, and a population of a million of

souls, owes it to her own dignity to have a faithful index of her actual state. It was highly desirable to make the citizens of distant counties and towns better acquainted with each other. A book like the present is happily calculated to produce such an effect. We commend the original conception of such a work. We are pleased to see it executed with diligence and spirit; and we have a full persuasion that the patronage granted by the legislature was worthily bestowed.

The plan which Mr. S. has pursued, is this: 1. He has given a general and statistical view of such matters as appertain to the state at large. 2. He has exhibited a summary of the several counties, each by itself. And 3, he has displayed, in the form of a dictionary, the cities, towns, villages, and other memorable places, with the requisite information annexed to them severally.

We would recommend to Mr. S. a revisal of his observations on mountains, at page 9. He is mistaken in supposing the Allegheny to traverse New-York, or the country to the north-east. Nor are the Kaatskill, nor the Shawangunk, parts or continuations of that great dividing ridge. The Allegheny mountain does not reach the eastern or main branch of the Susquehannah; but gradually subsides and disappears in the region west of that river, and considerably south of the New-York line. The various ridges to the S. E. are known in different districts by different names; as the Highlands, the Musconetcunck, the Shawangunk, the Kittatiny, the Blue, the Laurel, the South, the North, and the Endless Mountains; with a variety of other names. But the Allegheny passing to the S. W. separates the streams of the Susquehannah and Potomac from those which empty into the Ohio; and so continued along, under the name of Apalachian, forms the height, from one side of which, with some exceptions, descend the Atlantic, and from the other, western waters.

Through a deplorable neglect of her citizens, New-York, though profuse in natural productions, is rarely quoted in the books of science for any thing whatsoever. It is one of the remarkable circumstances in her history, that manifold and curious as are the minerals, plants, and animals she embosoms, few of the natives have bestowed much attention to them. Latterly, however, the taste for physi-

cal research has increased; and we hope more abundant materials will be offered to Mr. S. for his article of natural history, p. 20, &c.

We would suggest to Mr. S. in the most friendly manner, that his chapter on the *regents of the university* is not so full and correct as it ought to be. (p. 40.) That which treats of *Columbia College* requires alteration and amendment. (p. 43.) The one concerning the *College of Physicians and Surgeons*, ought to be revised and retouched. (p. 44.) And no doubt can be entertained of the willingness and ability of the author to make his history conform to the real state of the respective institutions.

It would be easy for us to offer other observations; but these must suffice. Our intention is not to carp or find fault, but to propose such remarks as may tend towards the perfection of a very useful work.

Catalogus Plantarum Americæ Septentrionalis, huc usque cognitarum indigenarum et cicurum: i. e. A Catalogue of the hitherto known native and naturalized Plants of North-America; arranged according to the Sexual System of Linnæus. By HENRY MUHLENBERG, D. D. *Minister at Lancaster, in Pennsylvania.* 8vo. pp. 112. *Lancaster. Hamilton.* 1813.

THE learned and reverend author of the present work, has rendered great service to the natural history of North-America. It was chiefly compiled from his own observations on living plants in Pennsylvania, and on dried specimens sent him by his numerous correspondents in different parts of this country. Besides the contents of his extensive herbarium, he has borrowed some names and descriptions from botanical works of the most recent date and respectable character.

Of vegetables properly foreign, the names of none have been inserted, that may not be considered as naturalized to our region. Had the specimens received from distant parts been in better preservation, the list would have been

considerably more extensive. However, the performance, in its actual condition, is the fulfilment of an important desideratum. Supplements can easily be added, as they occur, in the progress of discovery.

The composition was finished in 1809. It was put to press in the autumn of 1812; and the printing finished during the summer of 1813. Each page is divided into five columns; the first of which describes, as far as is intended, the calyx; the second, the corolla; the third, the systematic or scientific name; the fourth, the English and vulgar name; and the fifth, the place of growth, and time of flowering.

He wishes health and prosperity to all lovers of Botany, and particularly to his American friends and correspondents; to wit: William Baldwin, Benjamin S. Barton, William Bartram, Peter Billy, John Brickell, Zaccheus Collins, Manasseh Cutler, Gustavus Dallman, Christian Denke, Caspar W. Eddy, Stephen Elliot, Aloysius Enslin, Elizabeth Gambold, William Hamilton, Frederick Kampman, Matthias Kin, Samuel Kramsch, John Lyon, Bernard M'Mahon, James Mease, Samuel L. Mitchill, Henry Moore, P. E. Muhlenberg, Christopher Muller, Frederick Pursch, Rafinesque Schmaltz, Joseph Vander Schott, and Jacob Van Vleck.

The plants of North-America are arranged under eight hundred and sixty three genera. The sexual system is pursued through all the twenty-four classes, and the palms (though of these there are no more than two.) Besides, the new general of Michaux, and the other modern botanists, are liberally introduced; such as the HAMILTONIA (or Elk-nut,) PINCKNEYA (Georgia bark,) JEFFERSONIA, (Podophyllum,) MUHLENBERGIA, BARTONIA, FRASERA, AMPELOPSIS, and a number more.

Dr. Muhlenberg has really compressed, and one might almost say, condensed a great deal of information within a small compass. By significant characters, he informs his readers whether the plant is a cultivated species, or an exotic naturalized, or reared in gardens. By simple inspection too, it appears whether the vegetable is annual, biennial, persistent, or frutescent; as also whether it flourishes in New-York, New-Jersey, Georgia, or any other state in the union.

He acknowledges his obligations to certain books; such for example as Gronovius's Flora Virginica; Forster's Catalogue of North-American Plants; Walther's Flora of Carolina; Linnæan Species of Plants edited by Willdenow; Persoon's Synopsis of Plants; Donn's Cambridge Garden; Aiton's Kew Garden; Willdenow's Berlin Garden; Acharius's Description of Lichens; Persoon, Bolton, and others on the Fungi; Hedwig on Mosses, and Michaux's Flora of North-America.

With such substantial assistance Dr. M. has enumerated the vegetables of North-America. The specific and common names are annexed, and placed directly before the eye. And we have no doubt of our correctness in observing that, whether we regard the information of the author, or the benefit he has done to the science, his publication ought to form an æra in the history of American botany.

Elements of Surgery; for the use of Students; with plates. By JOHN SYNG DORSEY, M. D. *Adjunct Professor of Surgery in the University of Pennsylvania; one of the Surgeons of the Pennsylvania Hospital, &c. Two volumes, 8vo. Philadelphia. Edward Parker, and Kimber & Conrad.*

THIS is a valuable compendium of the most improved English, French, and American Surgery. The last is not the contribution of a swelled list of our writers and surgeons. But an intelligent reader will acknowledge and appreciate surgical improvements on this side of the Atlantic, how few soever may be the sources from which they originated.

This work is dedicated to the Students of Surgery throughout the United States, whom we congratulate on the occasion, not merely because we esteem it a successful attempt to facilitate their studies, but because it is the best guide which they can follow in their future practice.

To students every opportunity ought to be given to derive instruction from original sources, even with their imperfections, on which they can more usefully entail the improvements of modern practice. Numerous extracts are found in this excellent work, from authors who professedly directed their inquiries to one or many surgical subjects; but in many instances their physiological views, doctrines, and theories were not, and probably could not, be taken notice of. All these materials, for instruction, would therefore be lost, or at least neglected, by *students*, were they restricted to one compendium or elementary treatise, however judicious and extensive it might be for practitioners. Such are the excellent views of Botallus, of Ambrose Paré, of Larrey, and others, on gun-shot wounds; of Home on ulcers; of Boyer on several of his apparatus for fracture, of Scarpa on his theory of fistula lachrymalis; of Saunders on cataract, of l'Eveillé, Park, and Morand on the resection of bones; and a multitude of others on various subjects: into as many of which the student should be initiated, as his talents and industry can embrace, to exercise his mind, to render himself a critical judge, to elicit from his ingenuity comparisons, observations and inferences, and thereby find out improvements whenever there is possible room for them.

In another point of view, we feel perfectly satisfied, that scarcely a better work could be recommended to young practitioners of surgery in America, than the Elements of Professor Dorsey; and we little apprehend contradiction when we duly consider all that is required for a tyro or novice in practice; and to what extent, with what talent, and attention to localities, the present work has been conducted.

Were we to suppose the brightest genius just licensed for practice, or dubbed with all academic honours, perhaps even a returned visitor of the celebrated English and French amphitheatres and hospitals, where he has seen and *learned* a *great many things*, he still wants experience! In the immense variety of accidents and cases of internal or external injuries, for which surgical help is required, many years must perhaps elapse before he can gather experience from one case to a second of nearly the same nature.

In the midst of a numerous population, in large city-

hospitals, and in armies, a young surgeon can with difficulty, after some years, meet with opportunity enough to exercise his skill, augment his acquired knowledge; and hence be fortified, by his experimental observations. Would he, therefore, engage in surgical practice without a prudent guide, by whose help his mind should be directed, his judgment on operations promptly decided, and his hand rendered firm and steady? Surely not; if he is apprized of the numerous chances for the life of his patients, he must lose by want of experience, and from natural timidity, however well informed he would feel in a general point of view, and in all cases he is to be called for.

It was with a view of assisting young practitioners that professional writers of all nations, principally of England and France, did methodically collect and diffuse their doctrines, discoveries, and modes of operation in the surgical branches they had particularly investigated, and in which they had been most successful.

Many of these meritorious treatises do not embrace all the prominent diseases and accidents for which a young practitioner must keep himself prepared. Admitting that a few are nearly complete, they become every day defective or inferior to the most approved modes of practice. Whether French or English, their rules of treatment and clinical precepts cannot at all be adapted to the vicissitudes of our seasons, to the powerful influence of our climate in the extensive range of our states. This difference, with so much of individual constitutions, is so important, in cases of great operations, that a disregard of them would expose our subjects to an unavoidable although opposite sort of danger.

But to prove that clinical precepts, laid down for different nations or descriptions of people, could not safely be applied to the inhabitants of this part of the world, we need only to state a few facts, out of a great number, that many readers may recollect, and associate to the same purpose. La Martiniere, a renowned French surgeon, had observed, during the continental war of 1756, that two-thirds of the amputations of limbs in camps were attended with a fatal tetanus; he therefore would hardly resort to it, even in extreme necessity. The famous Petit, who happened to witness, during his life-time, a vast number of luxated an-

kles immediately terminated by mortification, laid it down as a precept in his own writings, that no prudent surgeon should delay the amputation of the leg beyond twenty-four hours after the accident. Now, is it not well ascertained, that we are not to look for such dreadful consequences in this country, and that there is no occasion, nor would it be justifiable to adopt in it a similar rule and practice? Furthermore, let us observe, that the same internal disease or epidemic, has been, in different places, either cured or rendered fatal by the same remedy; namely, by bleeding, which proved destructive in the plague of Marseilles, and highly beneficial in several inland places of the south of France, where it broke out. The same opposite result we witnessed many years back in the city of Philadelphia, and have ascertained it in Cadiz. How far so dissimilar a predisposition may require different treatment in surgical cases, it would be superfluous to explain. With respect to individual constitutions, there are some well known *national* diseases, and there must be *national* idiopathic predispositions. We have seen, or heard, of the *mal Anglois* of the Canadians, of the *plica polonica*, of the *goitres* of the Alpine vallais, of the transverse ulcers on the legs of the Abyssinians, of the *Guinea worm*, &c. And there is also something peculiar among many of the Scotch, for Lieutaud had observed in Paris, that the natives of North-Britain were there subject to *spontaneous mortifications*, either from internal or external light causes. He attributed that tendency (we do not know how correctly) to their habitual use of oat-meal; but we recollect several facts in conformation of this singular idiosyncrasy. Should we go further, we might call upon American practitioners, to tell us, whether they would assimilate the constitution of the Creoles, of the French, and of the Spaniards, to that of the the hardy inhabitants of the North of Europe; or the poor and sober mechanics of the British isles to the natives of the same, but wealthy friends of comfort and luxuries of life, pampered with rich viands and strong liquors? Without further comment on this subject, let it be remembered, that rhubarb, manna, senna, and neutral salts, are sufficiently operative medicines for the first, while they most always prove in our hands feeble, and useless beverages for the latter. So much, therefore, for our safety, in resorting to

the experience of our own writers, for the treatment of medical and surgical diseases.

In estimating the merits of the work of Dr. Dorsey, we observe that he sedulously avoids any statement of controversial or theoretical points of surgical physiology, such as many systematic writers might furnish him with. He mostly confines himself to practical means, or experimental modes, which his experience, and the authority of great masters of the healing art, make recommendable. With this view, he adduces copious extracts from their writings, either to compare their opinions, and better to illustrate his own inferences; which, in skillful hands, will no doubt snatch many lives from impending death, and restore thousands of useful individuals to their families and to society. This mode of establishing his doctrines, we admire the more, in as much as it evinces the profound knowledge of the author, and that rare degree of candour which would not divest itself of the smallest proportion of weighty authority for the sake of originality.

Under our impressions of the utility of Dorsey's Elements of Surgery, this author cannot deem it singular that we should wonder at the motives he has manifested for the pursuit of the task he has so well accomplished; namely, to preserve students from national pride and prejudices, which might retard the progress of science, owing to the deficiency of philosophic courtesy and candour among the celebrated masters of the surgical art, who have stood foremost in England and France. Hence, also, he supposes that the French have shamefully neglected the English doctrines of adhesion, and the latter the practical surgery of the other in relation to fractures, while the interesting works of either, are reciprocally unknown to, or slighted by each other, &c. (Vid. Preface.)

However unimportant, as matter of opinion, the above remarks might be, we think that in a general point of view they are unfounded. We do not recollect a single instance of that want of philosophic courtesy towards the English in any French surgical work. Recurring also to a detailed account of the progress of anatomy and surgery in England, we find in it the most unreserved and liberal acknowledgment of the merit, talents, and services of their most celebrated authors, which by the by, are in the same

pages proved to be all translated in the French language *(Vide Encyc. Methodique, Medicine. Art. Anatomie.)* Furthermore, we think it a question worthy of fair decision, in which nation, English or French, the doctrine of adhesion, *de la reunion par la premiere intention*, has first originated. Nevertheless, that it is as original in the French surgery as in the English, we have not the smallest doubt.*

Perhaps a few British surgical writers are not altogether very amiable and courteous towards their neighbours of the continent. This is the more probable, as no three or four writers of their island, can really be said, nationally speaking, perfectly unprejudiced. However, we are happy to observe, how much Dr. D. cherishes a quite contrary and liberal disposition. Our readers will see with great interest his judicious criticism upon the national asperity of the celebrated but eccentric John Bell. (Vol. i. p. 156.)

"Fractures of the os femoris are more difficult of cure than those of any other limb; and such was formerly the want of success in the preventing deformity, that the ancients considered it impossible to cure them without shortening of the thigh; and Mr. John Bell, notwithstanding his high notions of modern surgery, declares, that 'the machine is not yet invented, by which a fractured thigh bone can be perfectly secured.' A position which, though entirely false, proves that surgeons consider the fracture of a very serious nature.

"Before proceeding to detail the practice I wish to recommend in the treatment of the os femoris, it may not be amiss to premise, that surgeons have been greatly divided in their opinions respecting the posture in which the patient should be placed during the cure.

"The celebrated Mr. Percival Pott was a warm advocate for a bent position, and recommended the thigh to be bent upon the pelvis, and the leg upon the thigh, and the

* The writer was initiated thirty years ago in the Doctrine of adhesion in a French Military Hospital, by the promptness with which he saw a soldier dressed who had one of his cheeks, fat and round, cut down by a *coup de sabre*. It had not so much as an inch of *cutis vera* to hold it fast. It was simply lifted and adjusted to the face with a few adhesive strips, without a single ligature, the whole secured by a bandage; and a *reunion* was accomplished, with scarcely any visible scars, in less than a week's time.

patient to be laid upon his side, under an idea, that in this manner the muscles would be most completely relaxed, and thus the great cause of deformity obviated. The British surgeons have pretty generally followed this practice.

"The late French writers, and particularly Desault and Boyer, have strenuously recommended a contrary practice, placing the patient on the back, and extending the lower extremity. The reasons which induced them to reject Mr. Pott's plan, Desault states to be 'the difficulty of making extension, and counter-extension, with the limb thus situated; the necessity of making them on the fracture, such as the lower part of the leg; the impossibility of comparing the broken with the sound limb; the uneasiness occasioned by this position if long continued, though at first it may appear most natural; the troublesome and painful pressure on the great trochanter of the affected side; the derangements to which the fragments are exposed when the patient goes to stool; the difficulty of fixing the leg with sufficient steadiness, to prevent it from affecting the os femoris by its motions; *the evident impracticability of this method when both thighs are broken*; and finally experience, which in France has been by no means favourable to the position recommended by Pott.'

"Mr. John Bell, with all that copia verborum which characterizes his truly peculiar style, and with all that violence with which he opposes every thing he fancies wrong, has devoted several quarto pages of his Principles of Surgery to an abusive opposition of the practice of Desault, whose theory he pronounces 'unworthy his high character;' and asserts, that 'his intentions, and indeed his very words, are anticipated not merely by old surgeons, whose works he might have neglected to read, but by his immediate predecessors and cotemporaries, Petit, Sabatier, and Duverney.' Mr. Bell declares, that Desault's plan 'is neither original nor successful;' and that 'the napkin round the thorax produces oppression and insufferable distress, which no one can possibly bear.' Mr. Bell, in this, and many other passages, proves incontestibly that he never saw Desault's apparatus applied; that he is entirely ignorant of it, and that in this, as in several other instances, he writes and rails on a subject he does not comprehend. In proof of this, I shall quote the following passage, which

strongly evinces his want of candour, and his want of correct information.

"To judge of the merits of these methods, *imagine* to yourselves the condition of a patient under Desault's discipline; *first laid down on one side*, and bound to the long splint of Duverney, that the body and the limb were as one piece; next a great napkin put round the thorax with all the firmness of a bandage; straps going round the thorax, passing under the arm-pits, fixed to this circular, and the patient drawn up by these straps to the head of the bed. Next *imagine*, two lacs or long bandages, fixed one round the knee, the other round the ankle, one lightened when the other had caused excoriation; *imagine* the patient, extended like a malefactor drawn by horses, bound so down to the bed, that even a cloth or flat dish could not be slipped in under him; the hands assiduously tightened the moment they seemed to relax, and the *thorax so bound and compressed that he could not breathe;* think of all this apparatus of bandage if you can, without holding in your breath, as if trying whether such oppression could be endured. I think, for my share, I could as well undertake to live under water, as in Desault's, I might say Damien's bed.' When the reader has finished this rhapsody, let him *imagine* something precisely opposite to what Mr. Bell has *imagined*, and he will have some idea of Desault's apparatus.

"How far Desault or Damien are to be considered as authors of this *imaginary* apparatus of Mr. Bell, a perusal of their writings will show; but it is truly astonishing, that after such gross perversions, Mr. Bell should have the effrontery to add, that he has quoted his histories of the various machines in the very words of the inventors, because it is the only fair and impartial representation.'* Mr. Bell knew what *would have been* impartial; and yet far from quoting Desault's '*very words*,' his whole object has been to misrepresent them.

"I should owe an apology for this digression, if the object were less important; but I am solicitous that *students of surgery* should not consider the *sophistries of John Bell* as logical arguments."

* John Bell.—Principles of Surgery, vol. i.

Surgical treatises are very numerous; and many professional men, who feel more partiality for whatever author they are best acquainted with, or whom they have previously consulted, will, perhaps, object against the adoption or purchase of this new work, that it is nothing more or less than the repetition, or a new form of other works, the substance of which could not be much altered or improved. This allegation, we are prepared to prove, does not apply to Dorsey's Elements, for they might be defined in substance the abridged doctrines of thirty or forty surgical works, instead of being the repetition of one or of a few predecessors only. But to the friends of the operative branch of the healing art, we can represent this work as abundantly enriched with improvements, that are not to be found in other works; and to which no correct or studious practitioner could be indifferent. To the name of Dr. Physick, principal professor of surgery in the University of Pennsylvania, we see affixed many of those improvements which reflect great honour upon his talents, and are in character with his unwearied industry during many years of an extensive practice. These are to be met with, principally in the treatment of mortification, in the reduction of old dislocations of great joints, in the operations of hernia, of cataract, of lythotomy, and in many diseases of the urinary organs, &c. Some of his ingenious and successful means, in a variety of difficult cases, together with many practical facts from the author himself, who appears to have been fortified by experience and rare opportunities, give indeed to the whole work a character of novelty, and the merit of original improvements, which place it foremost in the rank of surgical works.

We are not conscious that our remarks will provoke against us the reproach of national prejudices, and that we will be controlled by better judges than ourselves in the scientific world. We do not challenge foreign talents and dicoveries. We do not unworthily claim any invidious pre-eminence. But while we do not lose sight of the progress of surgical science in our days, we pronounce the American Elements of Surgery by far the best guide we could recommend to our young practitioners. A few short and interesting extracts may further convince our readers, that nothing has been neglected in this treatise to assist the

tyro in practice, and even instruct every description of inquirers into useful and exemplified modes of affording relief to human sufferings and miseries.

On the Treatment of Strictures. (Vol. ii. p. 119.)

"The methods of treating strictures of the urethra in general use, are two; the dilatation by means of bougies, and the destruction of the stricture with caustic. Dr. Physick has contrived another plan, and in some instances, has cut through the stricture.

"The introduction of bougies to dilate the stricture, although considered by Mr. Hunter as affording only a temporary relief, succeeds no doubt in curing completely a great many cases of this complaint. The manner in which bougies act upon the stricture, is not simply by dilating mechanically the contracted passage, but by pressure they produce ulceration, and the stricture is destroyed by the absorbents.

"In this country it is essential for the surgeon to be acquainted with the manner of preparing bougies, because those which are imported and manufactured for sale are very unsafe, and are totally unfit for the purpose for which they are designed. They are unsafe, because being formed generally of old linen, they are apt to break, and in this manner may lodge in the bladder or urethra, and occasion great inconvenience; and they are unfit for use, from their bad form, and from the improper substances of which they are composed.

"The best materials for the construction of bougies are fine new linen and pure yellow bees-wax. The linen should be cut into pieces about twelve or fourteen inches square, and dipped into melted wax; it should be taken out in such a manner that the wax may drip off at one end, and not more by one corner than another; in this manner the linen will receive a coat of wax of a uniform degree of thickness, excepting that the depending portion will be more thickly coated than the superior part; the linen is to be cut into strips of a proper width, care being taken always to cut in the transverse direction, because as there is no more wax upon the lower than upon the upper part, there would be an irregularity in the form of the instrument if this

caution were neglected. The strip of waxed linen or bougie plaster is next to be cut of a proper shape, so that when rolled up it may taper to a point. The form which I prefer, is to have the bougie slightly conical, through its whole length, but to taper at the end, very quickly to a point. The smallness of the point enables the surgeon to insinuate it into the stricture, and the conical form gives it a degree of firmness gradually increasing from the point to the opposite extremity. The art of rolling up the bougie, and of giving it a proper point, is to be acquired by habit, and need not be particularly described. I will only remark, that a marble slab, or a polished mahogany table, and a broad spatula, or knife, are all the tools necessary for this purpose; and I conclude this part of the subject by recommending to the practitioners of this country the preparation of their own bougies.

"Previously to their introduction they should always be covered with sweet oil."

On Catheters. (Vol. ii. p. 132.)

"The great reliance of the surgeon, however, in all cases of retention of urine, is upon the catheter; and the introduction of this instrument is an object of immense importance to the safety of the patient, and of proportionate interest to the surgeon. I know no disease, in the treatment of which dexterity and science are more essential than in the present, and there are very few in which more mistakes have been committed, or where the consequence of deficiency in the skill or knowledge of a practitioner are more serious and fatal. In the interior of our country there is reason to believe that many valuable lives are annually lost from no other cause than a want of proper medical assistance in cases of retention of the urine.

"Catheters are tubes adapted to the purpose of drawing off urine. Until within a few years they were generally made of silver, and of course were incapable of altering their shape when passed into the urethra: the importance of flexibility in this instrument induced the older surgeons to construct catheters of silver wire rolled in a spiral form, and polished smoothly on its external surface. Of late years a flexible metallic compound, consisting chiefly of

gin, has been formed into catheters, some of which possess great flexibility. A French family, of the name of Bernard, are in possession, however, of a composition for the construction of catheters far preferable to every other hitherto in use. The instruments prepared by Bernard have been supposed to consist of elastic gum. I do not myself believe that much if any elastic gum exists in the catheters manufactured by Bernard, because I have seen catheters made of elastic gum, and they had no resemblance to those of Bernard; they were useless from their too great flexibility. A web of silk forms the basis of the instrument, and the silk is varnished with a peculiar secret composition, which, when dry, is hard, and susceptible of a fine polish, and the instrument remains in the urethra a week or ten days without producing much irritation, and without becoming rough, or being in any degree dissolved—properties, as I believe, peculiar to the French catheters, the best of which are those prepared by Bernard.*

"A great many catheters have been made in imitation of the French. Those made in England are much more highly finished, and, for the mere purpose of drawing off the urine, they answer extremely well, but when left in the urethra they become rough, and finally dissolve in the urine and mucus.

"Dr. Physick has made a great number of experiments, with a view of discovering some composition possessing the requisite flexibility, and remaining insoluble in urine. A cylindrical silk web, wove by the whip makers upon wire of different sizes, may be readily coated with varnish, and, when dried, is easily formed into a catheter. Copal varnish may be used for this purpose; and a catheter, well adapted for drawing off urine, can be made without difficulty; the surface being polished by rubbing it with pumice stone. This instrument, however, Dr. Physick found, becomes speedily rough when allowed to remain in the urethra, and no other composition which he used possessed the properties combined in the French catheters; nor have the labours of others been more successful, for though very

* It is singular that Mr. Charles Bell should declare, at the present day, that "in the hands of a dexterous surgeon, the silver catheter is in general preferable to every other." The surgeon who uses it should be also a "dexterous" silversmith.

numerous attempts have been made to contrive a substitute for this instrument, they have all failed.

" I shall dilate upon this subject no farther than to mention a mode of preparing an extemporaneous catheter, which, under certain circumstances, may prove a very useful instrument to the country practitioner. It consists in regularly extending the spiral wire of the suspenders, which form at this time an article of every gentleman's dress, till it becomes of sufficient length. This wire is afterwards to be covered with bougie plaster, and a hole cut near the end; being properly rolled and prepared like a bougie, it forms a very tolerable catheter. Dr. Physick, in a case of emergency, where no other catheter was to be procured, contrived this instrument, and, on a similar occasion, I have once found it extremely useful. I find, however, that Mr. Daran was in the habit, many years ago, of preparing a catheter somewhat in the same manner, by enveloping one of the old catheters formed of spiral silver wire in bougie plaster."

On Blood Letting. (Vol. ii. p. 279.)

" The German fleam, or spring lancet, I prefer greatly to the common English lancet for phlebotomy; it is now in some parts of the United States almost exclusively used. I shall insert some remarks on this subject, which I published in an edition of Cooper's Surgical Dictionary in 1810. ' In a country situated like the United States, where every surgeon, except those residing in our largest cities, is compelled to be his own cutler, at least so far as to keep his instruments in order, the spring lancet has a decided preference over the lancet; the blade of this can with great ease be sharpened by any man of common dexterity, and, if not very keen, it does no mischief; whereas a dull lancet is a most dangerous instrument; and no one can calculate with certainty the depth to which it will enter: to sharpen a lancet, is regarded by the cutler as one of his nicest and most difficult jobs; it is one to which few surgeons are competent.

" The *safety* of using the fleam is demonstrated by daily experience; there is no country in which venesection is more frequently performed than in the United States, and *perhaps none where fewer accidents from the operation* have

occurred; of these few, I beg leave to state, that all the aneurisms produced by bleeding, which I have seen, have been in cases where the lancet was used. I have since, however, met with an exception to this statement. I have seen the brachial artery opened by a spring-lancet; but it was by an old barber, half blind, and very clumsy.

"The manner of using the spring-lancet differs in nothing from the operation with the common lancet, excepting that the surgeon must place the instrument in such a situation, over the vein, that when the spring is touched, the orifice into the vein will have a proper size and direction. Dexterity in this is very readily and speedily acquired. In point of *facility* in its use it has a great advantage over the lancet.

"Among the advantages of the spring-lancet *economy* is not the least. A country practitioner, who is constantly employing the English lancets, and who is particular in using none but the best, must necessarily consume half the emolument derived from the operation, in the purchase of his instruments. One spring-lancet, with an occasional new blade, will serve him all his life."

There are a few blemishes in this work not altogether indifferent subjects of animadversion. Some of them have perhaps resulted from a nakedness or simplicity of style, which, to certain readers, may appear affected, and to others very negligent. The didactic form of an elementary scientific work, we are aware, does not require much eloquence; but when divested of the literary beauties of moral and sentimental writings, should at least be dignified by a strict regard to perspicuity of reasoning and correctness of expression. What means the title of the first chapter on *accidental injuries?* It is applied, we find, to concussions, to rupture of small blood vessels, and to *little cuts* only. Do not *accidental injuries* by distortion of joints, by contusion of bones, by violent stretch on tendons or muscles, and by distention of arterial coats, constitute some of the most terrible and difficult cases of surgery? On this, however, and on a few other slips of the pen, we will not lay much stress, lest we should appear to derogate from the respect we profess for the author. But we must be permitted to glance at inferences of contradictory and unapproved doctrines, or such as may

be drawn from obscure and incomplete expositions. We have it, for instance, in this work, that no given definition of the cause of *hectic fevers* can be adopted, because it is without foundation that Cullen attributes it to absorption of pus; that there are proofs of its existing without the latter, while absorption of pus frequently takes place, and is not attended with *hectic fever*. With this mode of reasoning, we are left to do the best we can, or to think that *hectic fever* is actually a mystery; in other words, we are deprived of an usual rationale, and even of a necessary one to establish the correct diagnosis of numerous internal or surgical diseases, without receiving the means of acquiring a more correct one. As for us, we think with Cullen, and with a phalanx of other authoritative judges, that *hectic fever* is produced by absorption of pus; and against exceptions from that general observation, we acknowledge that with an inconsiderable degree of absorption of pus, and in a constitution as yet unimpaired, *hectic fever* will not take place. *Hectic fever* also may exist without absorption of pus, in cases of suppression of important secretions, and of extensive suppurations, which have been accidentally repelled or suppressed. We are aware of so many staring facts to support this definition, that we consider it unnecessary to enumerate them.

We are told, page 34 of vol. I. that contused wounds are those in which the surrounding parts are bruised and injured. If, therefore, we understand well what is the injury resulting from a bruise, we conclude, that the surrounding parts, such as muscular fibres, vascular tissue, and tendinous membranes, are actually torn or cut, and exposed to die, according to the degree and extent of the injury. To effect the restoration of those parts, and their re-union, should therefore be the principal indication; to promote which, cold and styptic applications, &c. would prevent the greater effusion of fluids from ruptured vessels, and their stagnation between the gaping ends of divided fibres. Yet, we are informed, page 48, that "the best local application on contused wounds is a boiled bread and milk poultice!" That this must be attended by a contrary or prejudicial effect, we need not to prove, and that if ever it can be properly used, it must be in the last stage preceding sphacelation or suppuration.

There is another confused and contradictory explanation

on the mode of exfoliation of dead bone, &c. in the 33d chapter of the wounds of bones. It is stated, page 187, "that when in young persons, the bone becomes soft and red, and granulations arise from it, it is not true that there is an insensible exfoliation; that the laminæ of the bone are not broken down, dissolved and carried off by suppuration; the change consists of a softening of the bone, and *conversion of it into a fleshy substance, which unites with the soft parts.*" We are not aware of the possible *conversion* or *transmutation* of phosphate of lime into a fleshy substance; indeed, the inadvertence of such an unphilosophical assertion requires no further refutation. But, to come to the main doctrinal point expressed above, of the *non-dissolution* of the osseous matter, and which has been repeated in page 190, we ask, whether it is to be applied only to cases of exfoliation? If so, it ought to have been more explicitly declared; and, besides, who can conceive that when from a solid bone, a part of it is spontaneously detached, there is no breaking, no parting, and no melting of that bony matter which just before constituted a whole compact body? Be it, nevertheless, as the author is pleased to state it, what shall we think of the following contradictory remarks, at the very end of the last mentioned page? "The bone is composed of animal gluten* and earth. The earthy matter of the living bone is removed by the action of the absorbents just as in health. These vessels perform the process of interstitial absorption, removing from time to time the solid parts of the body. The consequence of this absorption of the earthy particles from the bone, must necessarily be, that the bone is converted into a *soft matter*, which is interposed between the living *solid* bone and the dead *solid* bone. The soft substance thus interposed is last of all absorbed, and the dead bone left without any connection with the living. We are therefore to consider the living bone as effecting the whole business of exfoliation, through the agency of its absorbent vessels; and these

* By the experiments of the celebrated Scarpa, it is proved, that every bone is a complete net, as exactly of its form as possible, its threads are vascular, in the innumerable cells and interstices of which, the bony matter, or phosphate of lime, is lodged and fastened. (Vide Scarpa de *penitus ossium formatione.*)

vessels act on the living matter, and, perhaps also, ON THE DEAD PART, immediately in contact with it."

Here we stop and decline further criticisms on these real or apparent contradictions, which we have attributed to want of clearness. This not unfrequently attends a peremptory mode of establishing propositions, and of subverting established opinions, which, however correct, should leave nothing to be defined, explained, or altered.

It is an old saying of Seneca, that there was no book so bad, but from which some wisdom and knowledge could be obtained. With more experience, *at this remote period of time*, than the Roman philosopher, we can affirm, and we have proved, that there is no good book without some imperfection, error, or misconception. Thus far do we set our face against any surmise of disparagement to a work which we predict will command successive editions, which we earnestly recommend to the young practitioners of America, and which it is our sincere wish to see extensively diffused, particularly among our army and navy surgeons, for the benefit and preservation of military fellow-citizens.

Experiments on the Principle of Life, and particularly on the Principle of the Motions of the Heart, and on the Seat of this Principle, &c. By M. LE GALLOIS, M. D. P. &c. *Translated from the French by N. C. and J. G. Nancrede, M. D.* 8vo. pp. 328. *Philadelphia. Thomas.* 1813.

OF these cruel and curious experiments, performed by Dr. Le Gallois, for the purpose of illustrating the respective functions of the heart and brain, our regular readers will recollect that a well digested account was sent to us from Paris as long ago as 1809. Mr. Warden's communication on these attempts to ascertain the seats of animal irritability and voluntarity, was printed in the Medical Repository, vol. xiv. p. 290, 291. And we presume of course, that the conclusion drawn by this bold inquirer to settle the disputes concerning the *vis insita* and the *vis*

nervea, are familiar to their thoughts. But the original work had not reached us. The public are indebted to the ingenious and learned Messrs. Nancrede for an exhibition of the entire performance in the English tongue. These gentlemen have annexed to Dr. Le G.'s experiments, as contained in his two first chapters, and read before the imperial institute of France, and the third which follows them, the report made to the class of physical and mathematical sciences by Messrs. Humboldt, Hallé and Percy, the committee of that body to whom the communications had been referred. This is an elaborate performance, and occupies nearly seventy pages. A variety of other tracts, statements, and papers, illustrating the deep physiological researches of the author, fill about twenty more. Led by an ardent desire to determine the time that a fœtus could live without breathing after the communication with the mother had ceased, he followed the light of experiment along until he occupied himself in maintaining life on a detached portion of the thoracic parts of a rabbit, by means of the dependence of the vital involuntary motions upon the nerves of the spinal marrow, and not upon those of the cerebrum.

Not thinking it necessary to repeat what we displayed over our pages early in 1811, at the place already cited, we quote from the memoir already mentioned, and contained in the present volume, the opinion of the aforesaid examiners. They consider, for example (p. 284) the following points as clearly established by experiment, to wit: 1. That the principle of all inspiratory motions resides nearly in that part of the medulla oblongata which gives rise to the nerves of the eighth pair. 2. That the principle animating every part of the body, resides in that part of the medulla spinalis from which the nerves of that part originate. 3. That it is likewise from the spinal marrow, that the heart receives the principle of its life and of its power, but *in the whole medulla*, and not in any circumscribed portion of it alone. 4. That the great sympathetic nerve has its origin in the spinal marrow, and that the peculiar character of this nerve is to place every one of the parts to which it is distributed under the immediate influence of the whole nervous power. And they consider the difficulties that existed in the days of Baron Haller, and since, concerning the motions of the vital organs, chiefly solved and explained; such

as the question, Why the heart possesses nerves? Why it is submitted to the influence of the passions? Why it is obedient to the will? And also, why circulation goes on in animals naturally without heads, and deprived of heads? This same board of examiners consider the present work as one of the most beautiful, and, beyond a doubt, the most important that has appeared in physiology since the days of Haller; and that its publication will form an epoch in that important science.

It ought to be mentioned, that the victims of the author's barbarous, though scientific curiosity, were principally rabbits; though cats, dogs, and guinea-pigs were likewise the martyrs of his investigating zeal. Human sacrifices were not offered up for those purposes to Hygeia and Æsculapius. Brute animals only were subjected to the torment of being dissected alive. It will be remembered, therefore, that the reasoning, as applied to the constitution of man, is not direct and positive, but that of comparison and analogy only. The patient frogs, who have millions of times shed their blood and devoted their lives, for the gratification of dissectors and poisoners, did not escape the cold-blooded operations of M. Le G.

Besides the experiments recited in the three chapters of the book, the committee describe others, which he performed in their presence. They are related at length, and aid in establishing the conclusion, that the principle of the inspiratory motions resides in the medulla oblongata, and that of the life of the trunk in the spinal marrow. (p. 289.)

So much for the present on Dr. N.'s version of this expensive, laborious, and skilful inquiry into the vital condition of animals. It contains intelligence enough to set every anatomical reasoner a-thinking. We may perhaps consider it again.

Medical & Surgical Correspondence.

Case of NEURALGIA *on the Face* (tic douloureux) *cured by a surgical Operation.*

To the Editors of the Medical Repository.

GENTLEMEN,

By giving the following Letter a place in your useful Vehicle of Medical and Surgical Information, you will not only confer a favour upon the writer; but, as he believes, will essentially subserve the interests of humanity, and cheer the hearts of many desponding sufferers.

New-York, March 1st, 1814.

To VALENTINE MOTT, *M. D. Professor of Surgery, &c.*

SIR,

IT is due to you, that I acknowledge, in the most public manner, the signal benefit which I have derived from the operation for *Tic Douloureux*, which you did me the favour to perform for me about two months ago. And I have great pleasure in saying, that the operation, performed upon the plan of John Bell, of Edinburgh, i. e. by dividing the infra-orbitary nerve, was accomplished in the most adroit and expeditious manner. The neatness and dexterity of the performance were such as to reflect great credit upon the operator, and to save much unnecessary pain to the patient; so that no less for the handsome manner of the execution, than for the happy result, I am confessedly under great obligations to you, as the means in the hand of a beneficent God, for affording the relief and comfort which, through his goodness and mercy, I now enjoy. I cannot, therefore, be too thankful for your obliging services, so cheerfully rendered on that occasion. Accept, Sir, this public testimonial of my gratitude.

That the nerve was effectually divided, is proved not only by the subsequent cessation of the pain; but also by the great numbness which immediately affected all the sensitive parts which lie in its course, and are dependent upon it. The division of this deep-seated nerve was affected with the least possible injury to the surrounding parts. And I think you have introduced a notable improvement of the plan of operating, by making a two-fold division of the nerve through one external orifice; that is, by dividing the nerve at two different places in its course, not far from each other, so as to insulate a portion of it (included as it were in a parenthesis) with respect to the common sensorium. I am well aware that Dr. Haighton has demonstrated, by actual experiment, that the ends of a divided nerve, like those of a bone, when brought into close co-aptation, will, after a time coalesce, and so unite as that the nerve shall again perform its functions as well as before the division: and that in reference to this fact, Mr. Abernethy has suggested the idea of taking away a portion of the nerve, so as to leave the ends more remote from each other, and thereby prevent their subsequent coherence; an event to be deprecated, as it most certainly defeats the cure. But the removal of a part of the nerve could not be effected without the serious inconvenience of making a large external wound in the face; thus rendering the operation much more formidable, both as to its immediate effects and possible consequences, without acquiring after all any additional security for its final and complete success. The pain of the operation, as it was performed by you, Sir, was comparatively light; less than I expected, and much less than a single violent paroxysm would of itself have inflicted. And since the date of this happy expedient, I have enjoyed a degree of comfort, which till that time I had not known for a number of years before. It is now approaching eight years since the first assault of this terrible enemy to my peace. Can it then be matter of wonder if I fondly cherish the hope, that the relief already experienced will be durable? For this soothing expectation, however, I would not be too sanguine. Thus far, indeed, the operation has been completely successful; and from the adventitious circumstance, that an adhesion between the integuments and the periosteum has taken place, exactly at the

point of incision, which adhesion will probably serve as a septum to keep asunder the ends of the divided nerve, I am the more encouraged to hope for a permanent cure. But whatever may be the ultimate result of the experiments, I feel myself warranted by the very great advantage which I have already derived from it, to recommend it to all those miserable sufferers, whether in our own country, or in any part of the world, who may be labouring under *Tic Douloureux*, that most distressing and dreadful of all diseases with which I have any acquaintance.

As I am now before the public, where I wish to appear as seldom as possible, you will excuse me, Sir, if I avail myself of this opportunity, to say a word or two, in the hope of rescuing the account of my case, which was published some time ago, from the obloquy of certain recent imputations. These imputations seem to me to savour not a little of personal pique and resentment, arising probably from the *flagrant* offence of having refused to worship at the shrine of some men's self-importance. However this may be, it is certain, that a very disingenuous attempt has been made to invalidate some facts incidentally mentioned in the history of this extraordinary case, as it was given in a letter to the late much lamented Dr. Benjamin Rush, the learned and candid man, the gentleman and the christian. The letter detailing these circumstances to Dr. Rush, was in answer to a very luminous communication on the subject of *Tic Douloureux*, from that accomplished physician and amiable man; and was published by him in the "Philadelphia Medical Museum," of June, 1810. And I do now again avouch, in the face of the world, and in the fear of God, that the narrative there given is in every particular perfectly correct. Nor do I believe that it was ever, in the smallest degree, doubted by those who have, notwithstanding, had the courage to contradict it. It may be, that the light of its truth was too intense for the weak eyes of their vanity; and that, therefore, they have sought refuge from its glare, in the shade of a perishable *gourd;* not reflecting that nothing stands the test of time and thorough investigation so well as *truth.*

I am, dear Sir, with great respect, your obliged friend and humble servant,

GARDNER JONES.

REMARKS.

The same operation has long since been performed, and with equal success, by the celebrated Petit, on a gentleman, a Canon of St. Denis, whose poetical talents and gratitude were immediately exemplified by an encomiastic Latin poem, on the excellencies of the art of surgery, and on the great skill of his benefactor, to whom he dedicated it. A labourer was also operated upon, in the Royal Infirmary of Edinburgh, October, 1809. It appears that, after many unsuccessful incisions on the face, the disease continuing, it was thought proper to make another inside of the mouth, to divide the nerve which passes out of the submental foramen, and the patient felt no more pain. This case is affixed to the inaugural dissertation on *Neuralgia*, by Thomas Kelly, for the degree of doctor of medicine, nine or ten months after the operation had been performed, thereby removing any possible doubt of the permanency of the cure. Dr. Jones was cured by the incision only of the infra-orbital nerve; from which difference, we conclude, that many known failures of similar operations must be attributed to the difficulty of ascertaining which of all the branches of the fifth pair causes the pain, especially when the patient experiences it over a great part of his face.

This horrid and torturing sufferance has also been the subject of many experiments, and has been combated by various remedies, for which their respective authors claim the merit of success. Fothergill had cured several cases, and greatly relieved others, with the extract of hemlock. An eminent physician of Boston, has lately* attributed to the same remedy the cure of four cases of *tic douloureux*. French authorities are known and recorded in favour of mercury. Hufeland, in Germany, has published the cure obtained by the extract of the *Hyosciamus niger* combined with calomel.† But the most curious, and also successful instance was that directed and published by the late Heurteloup, Surgeon-General of the French armies, that is, the wearing of an iron mask on the face. This

* Vid. New-England Journal, vol. ii. No. 2.
† Vid. Journ. de Med. vol. xvi.

fact is authentic,* and establishes, beyond a doubt, the magnetic influence on the nerves.

A more recent remedy has just come to our knowledge from Dr. Meglin, of Colmar, in France, advising a mixture of the extracts of the Hyosciamus niger, of the roots of valeriana sylvestris, and of the sublimated oxyd of zinc. Unfortunately, of the four cases by which he exemplied the cure or relief, there is reason to doubt of the genuineness of two that were *odontalgic*, perhaps more than *neuralgic*, and there is a complete failure of another.†

Any disease proved to have been cured in one or many instances, by various or different remedies, which in others have failed, must certainly be referred to a different cause in one subject, from that which excites it in another. This inference we expect must be admitted as a correct one in medical philosophy, and gives an uncontrovertible datum in this hitherto pathological phenomenon. Dr. Pascalis has seen a neuralgia of the face, co-existing and alternating in the same individual, with two different maladies; the one was a great hæmorrhagic disposition, and the other phthisis pulmonalis. May 12, 1808, he was called to one Mrs. Brewster, fifty years of age, whom an habitual cough and a feeble habit of body, induced her friends to represent as consumptive. She was now nearly sinking under a bleeding of the nose, which had unremittingly lasted during a week, and baffled active remedies. The doctor relied only on the operation of drastic and emmenagogue medicines, with a view of a salutary derivation, which happily put an end to the epistaxis. From her recovering of this, she occasionally suffered neuralgia on the face, which never could be relieved but when pulmonary symptoms appeared more aggravated. In the course of a year she was seized with hæmoptysis, at the cessation of which, neuralgia returned with such an excruciating intensity, that, with the hope of affording relief, she was directed to cause one of the molares on the painful side, which was much decayed, to be extracted. This was done by an expert dentist, who witnessed the most profuse and alarming hæmorrhage from the socket of the same tooth. It could not be check-

* Journ. de Med. 1811.
† Journ. de Med. June, 1813.

ed until a well adapted pledget of sponge, and a piece of cork, were adjusted between the jaws, and tied by a vertical bandage during two or three days. Neuralgia was again interrupted, giving way to the pulmonic irritation and raisings. With these it alternated, however, during six months, until the one disease overwhelmed it and all the vital powers of this unfortunate patient.—Whether neuralgia is caused by a cancerous diathesis, by syphilis, arthritis, &c. or by organic lesion, it matters not. The difference of causes excludes the possibility of finding a specific medicine against it; and leaves us with the surgical operation as the best remedy.

The French name anciently given to this affection of *tic douloureux*, should be entirely exploded, for it is misapplied in the French language, and unintelligible in others. The word *tic* means any ugly habit which people have to scratch, to gnaw, to twist, to cough, to spit, to fret, or any thing that is unpleasant to be seen, and which should be avoided. How this word could be applied to an excruciating and involuntary pain, it is difficult to explain. The wrong name of a disease is frequently the reason why it is not noticed, and seldom inquired into, and perpetuates our ignorance of its nature, cause, and most useful remedies. Even to this day, there are but few physicians, except they are well versed in medical literature, who know, or have heard much about *tic douloureux*.

Neuralgia, which is certainly not the morbid effect of one and the same cause,* is not confined to one part of the body, or to the nerves of the face. We have seen it in a phalanx of a small toe, in circumscribed spaces on the cylindrical bones, on the sternum, and on the cranium; but always essentially differing from gout, rheumatism, odontalgia, trismus, and hemicrania, by that truly characteristic sign of a neuralgic action, which is incessantly under the controul of external agents; and may be suddenly excited by heat, by cold, by light, by noise, and by the slightest contact or pressure of the affected part.

* Vid. Americ. Register, No. II. vol. iv.

Case of STONY SUBSTANCES *raised from the* LUNGS *by* COUGHING.*

I Take the liberty of relating my case to you. My native place is in the state of ——. I was born of healthy parents, led an active life, lived on a mixed diet, avoided all spirituous liquors. At the age of seventeen years commenced the study of physic; continued for four years. During the last year I was afflicted with an acid in my stomach, and a loss of appetite; I then took a journey to the western part of the state, in 1807, where I commenced an extensive and laborious practice. In March, 1812, after severe exercise, was attacked with slight pain in my left breast, and under the left shoulder blade, attended with a violent cough. The pain was removed by taking one dose of calomel and jalap, and letting blood; the cough was not. In the middle of April I took a journey to the eastward, which was about 800 miles, where the change of air was great; my cough became violent and convulsive, but no pain seized my breast: it continued for the space of three weeks. During a violent fit, I coughed up a calculus, similar to that which I have enclosed; my cough then abated. I then set out on my journey on the 1st of June, and rode about forty miles a day until I returned to my place of residence. During the journey my cough was dry, and I frequently coughed up calculi. In July, 1812, my cough became moist in the morning, and would abate until toward evening, then it would be dry and harsh, and appear to be at the lower part of the breast. It universally increases on lying down at night for a few minutes, then I rest perfectly well through the night. In the morning, for a long time past, I expectorated a concocted fluid, until three or four weeks since I was attacked with a shooting pain through my breast and shoulder blade. After taking an emetic, and going into a warm bath, and bleeding frequently, the pain abated, and I coughed up another hard substance. Since then every morning I have coughed up a thin

* This communication is from a most respectable source, and has a near resemblance to that of Mr. Shildigger, described in Med. Rep. vol. vi. p. 258—261, and 442—443.

substance, which appears like pus, until I cough four or five times, then it appears like thick phlegm. I have strength enough to ride thirty miles a day, though the least exertion of the lungs, such as reading aloud, talking, or laughing, will set me a coughing at all times. If you will examine this substance, and give your opinion and advice on the case, I will consider it a very great favour conferred on me as long as I live.

The LOWER LIMB *removed at the* HIP JOINT, *and the Operation attended with Success.*

Mr. BAFFOS, a surgeon of one of the hospitals in Paris, has published the history of an operation performed by himself, of an amputation of the thigh at the ileo-femoral articulation. The subject was a boy seven years old. He was a patient in the Infirmary for sick children, and had at the junction of the great toe with the metatarsal bone, a scar, the consequence of a scrophulous affection well cured.

On the superior anterior and exterior part of the right thigh, there was a hard smooth tumour, without fluctuation or discolouration of the skin. It could not be traced to any outward cause, but seemed to arise from a disease of the bone. Though it was indolent on his admission, it soon became painful, especially at evening. His appetite failed, and this was followed by leanness, restlessness and fever. The tumour enlarged, and the symptoms grew worse. The disease occupied more than half the upper part of the femur, even to its neck, and including the great trochanter. But the articulation itself appeared to be free.

Mr. Baffos meditated an operation at the joint. Yet, before he proceeded, he caused the boy to be examined by *Baron Dubois*, who advised him to undertake it. He then procured the personal inspection and professional opinion of *Baron Larrey*, in favour of the project.

Having decided upon the operation, Mr. Baffos prepared himself for the work, by performing it repeatedly on dead subjects. The result of his various experiments was the adoption of the method which Baron Larrey had practised three or four times with success. Mr. B. nevertheless,

differed from Larrey in making compression upon the femoral artery, and not tying it till the limb was removed, instead of applying the ligature first, and performing the amputation afterwards, as practised by the Baron, in compliance with the opinion of Messrs. *Volher* and *Puthod.*

This formidable operation was performed on the 3d of Jan. 1811, in the presence of a great number of students. Mr. B. was assisted by Messrs. *Danyau* and *Abraham.* The proceeding was as follows: The patient was placed horizontally on a bed somewhat raised, the pelvis a little sideways, the left leg hanging and supported by an assistant, the right extended and sustained by another.

Mr. D. standing on the left side of the patient, applied the thumb of the right hand to the femoral artery; Mr. Baffos then taking hold of the thigh with his left hand, moved it a few times, that he might *mark with his eye* the spot nearest to the articulation for entering his instrument. Having fixed upon the place, he took a sharp pointed knife, with a straight blade, eight inches long, and about six or seven lines broad, and plunged it boldly into the upper and fore part of the thigh, and on the outside of the artery. The point came out behind at the place diametrically opposite to that of its entrance. He then cut along the bone, about four fingers breadth; and then altering the direction of his knife, he made a horizontal section, by which he completed the inner flap. Mr. D. instantly seized this flap with his left hand, and thereby acquired the command of the blood. The operator next proceeded with a straight bistoury to divide the capsule and the round ligament. At the same moment he luxated the femur by a strong abduction. Then taking his first knife, he carried it behind the head of the thigh bone, to make, as high as the great trochanter, a horizontal section, by which he formed the external flap. This being accomplished, he tied the femoral artery with a double thread, and successively the smaller ones, that discharged blood, to the number of seven or eight.

The blood lost during the operation was estimated at somewhat less than a porringer full; and the time of its continuance from thirty to forty seconds, exclusive of the duration necessary for securing the vessels.

The dressing was performed by placing a piece of the agaric of the oak in the bottom of the wound, in front of the

cavity of the joint. The internal flap was applied to this piece of agaric, and retained in contact with the external flap by adhesive slips. Lint, oblong compresses, and a bandage of support completed the work, and the patient was conveyed to his bed.

As the boy appeared to have suffered severely during the operation, an antispasmodic potion, with liquid laudanum, was ordered for him; and he took, in the space of fifteen hours, twenty-four drops of that tincture. During the three first days he was agitated a little, but had not much fever. On the third day the dressings were removed. After taking off the sticking plaster, the two flaps were found to cohere. Their lower angle was gently separated, for the purpose of withdrawing the agaric. This was done by means of a ring-forceps, without either difficulty or pain. Dry lint was then applied with two or three adhesive slips. Suppuration came on kindly, and continued to be of good condition. The wound was never very large. Some of the ligatures separated on the 8th and 9th days; and on the 12th, that of the principal artery was found on the dressings.

The patient is stated to have recovered from the amputation, but to have died afterwards on the 5th of May.

[*Bulletin de la Faculté, &c.* 1812.

GASTROTOMY *performed with success in a Case of ruptured Womb.*

Messrs. COQUIN and CAPON, surgeons at Peronne, have related an instance of the fortunate section of the abdomen to extract the fœtus after a laceration of the uterus. The woman was thirty-five years old, of a choleric nervous temperament, and had lain in twice before. The first labour was difficult, and gave room for the discovery that the pelvis was straitened in its anterio-posterior diameter. At the third labour the birth had been protracted forty-eight hours, when the patient experienced an extremely sharp pain, which ceased suddenly, leaving a burning sensation and dull pains through all the abdomen. These symptoms were attended with alarming fits of fainting, and

a discharge of blood from the vagina. The latter symptom abated a little, but did not cease entirely. The midwife who attended her, after waiting twenty-four hours in expectation of the renewal of her labour-pains, asked the assistance of the two before mentioned practitioners.

They found, on examination, the belly projecting forward, the vagina empty, the neck of the womb so narrow as to admit no more than three fingers. They learned from the introduction of two fingers, (an operation performed with difficulty,) that the uterus was burst on the fore part; and near the rent was a soft body, which was supposed to be the placenta; the womb being empty. They entertained no doubt that the child had passed entirely into the cavity of the abdomen, and that gasterotomy was the only remedy. The patient concurring in opinion, that the operation was indispensable, it was performed on the 7th July, 1811, thirty hours after the rupture of the womb had happened.

The skin, the aponeurosis of the abdominal muscles, and the peritoneum were successively divided for the length of five inches between the navel and symphysis pubis. This incision gave immediate discharge to a small quantity of a blackish fluid; and then one of the buttocks of the child presented, and was brought forward. The rest of the body followed without difficulty, excepting the head, which made some resistance. The intestines gave no obstacle to the operator. The fœtus was dead. Its situation in the abdomen was such, that the head occupied the left lumbar region.

The blood and clots having been removed, the ruptured part of the uterus, and its vicinity, were washed with warm wine and water. The bulk of the organ might be compared to that of a woman two months gone with child. The rupture had happened on the lower part of the fore side, and extended to within two inches of the fundus. At an inch and an half from the cervix the aperture was yet wide enough to admit the entrance of two fingers.

The lips of the wound were closed by five or six stitches. The whole belly was covered with compresses dipped in vinous water, and kept in place by a bandage around the body.

The cure was retarded by various accidents, depending upon inflammation of the peritoneum, and costiveness.

They were obliged to cut the threads of the suture, and administer ipecacuanha and purges. The wound was nevertheless quite healed toward the end of August. The woman, on being visited in September and October, felt no inconvenience, and had even regained her flesh and plumpness. On introducing the finger up the vagina, the os uteri was found to be open; and passing the finger through it, a fleshy tubercle was discovered about half an inch beyond, which seemed to belong to the cicatrix of the rupture.

In reporting upon this case, Professor *Desormeaux* observes, that he knew of no more than two successful instances of gasterotomy after ruptures of the womb. The first of these is that of Surgeon *Thibault Desbois*, preserved in the Journal of Medicine for 1768; and the second that of Surgeon *Lambron* of Orleans, who operated twice upon the same woman.

This lucky case of Messrs. *Coquin* & *Capon* gives weight to the testimony in favour of gasterotomy after such dreadful accidents; and holds forth encouragement both to operators and patients.

[*Bulletin de la Faculté*, 1812. No. 3.

Description of a CÆSAREAN OPERATION *which was successfully performed, in relation both to mother and child, by Mons.* D'ARISTE, *Accoucheur at St. Pierre, Martinique, October* 14*th*, 1804; *drawn up by the operator. Translated for the Medical Repository.*

Miss R. L. C. born at St. Pierre, in the island of Martinique, of a strongly marked rickety constitution, and forty-six inches in height, at the age of 25 years, was married to Mons. Hachard, a captain of a vessel. She, in a short time, found herself with child. The first four months of her pregnancy produced no more than the usual symptoms, and for the three following months her health remained good. But at this period she experienced strong pains in her loins, with difficulty of breathing, and considerable anxiety. Bleeding from time to time, the use of the bath, with small quantities of food taken at once, supported her to the term of nine months. The 13th of October,

1804, at noon, I was called to visit her. Her pains were slight until half after two ; thenceforward they continued to increase in such a manner as to leave no doubt of an approaching labour. In two and an half hours the membranes broke. By touching I perceived a considerable protuberance on the back part of the superior passage of the pelvis, which I judged rendered its diameter in that place from before backward not more than an inch and a half. Alarmed with the danger of the patient, at 7 o'clock in the evening I called in, for council, Messrs. St. Hilaire, Gaubert, and D'Ariste (the latter of whom is my brother.) They agreed as to the mal-conformation, and were convinced of the impossibility of delivery in the natural way. The extraction of the child by the Cæsarian operation was thought indispensable ; but no immediate danger appearing in the case, it was deferred until the next day. The 14th, at half past 8 o'clock A. M. Messieurs Gaubert, Lavallar, Deveaux, my brother, and myself, met at the house of the patient, and consulted anew on her case ; having agreed in the impossibility of her being delivered in the natural way, preparations were made for performing the Cæsarean operation. The patient was laid on a matress, and placed horizontally on a table, with her head and shoulders raised, her legs and thighs separated, bent, and suitably supported. I first attempted to empty the bladder by the catheter, but the pouch of the belly fell so far over the thighs, that this preparatory operation could not be performed. I then, with a straight bistoury, made an incision in the direction of the linea alba, beginning an inch below the navel, and continuing the incision within an inch and an half of the os pubis. The integuments, muscles, and peritoneum being divided, a portion of the intestines presented at the lower part of the wound, and were supported ; after which I made an opening in the anterior part of the womb of three inches and an half in extent. I discovered the placenta, which I first divided, and then extracted. The belly of the child now presented with the head in the right side of the pelvis, and face forward, with the feet toward the side and back part of the left hip. I introduced my left hand into the womb, and grasped the left foot of the fœtus, and brought it forward to the side of the wound ; then the child being turned on the side, with the buttock presenting, I introduced two fingers into the

fold of its thigh, and extracted it from the mother. The child was a female. A considerable depression was found on the top of the head. The infant breathed with great difficulty. It was rubbed with spirits, and brought to.

I applied two stitches to the wound, one at the superior, and the other at the inferior part, where I introduced a tent of linen. Dry lint, with compresses, and a retentive bandage, constituted the dressings. The patient, who had supported the operation with great resolution, was now removed, put to bed, and took a little broth.

The child exhibited but few signs of life, and in the afternoon fell into convulsions, sometimes general, and sometimes partial. It was fed with water sweetened with honey, which it swallowed with difficulty, but gradually acquired a little strength. At the end of thirty-six hours it evacuated by stool, but it was three days before it voided urine. It was put to the breast of an aunt, and from that period continued to mend.

The mother was directed to the use of a decoction of bark to relieve the anguish, attended with debility and chilliness on the surface, which continued until six o'clock in the evening. At this time the pulse rose, and the skin became hot, with pain and sickness at the stomach. The bark was now omitted, and a composing draught given her. The uneasiness continued, but was somewhat relieved after having vomited a little yellowish bile. The dressings were renewed, and wetted with an emollient decoction. The night afforded some sleep, but the uneasiness and pain in the stomach continued.

On the 15th, the flesh being flaccid, and the edge of the wound covered with mucus, a decoction of the bark was applied with the dressings. The lochia discharged freely both by the wound and the vagina. The orifice of the womb discovered by the touch no preternatural heat. Urine was discharged plentifully during the night. She was troubled with flatulency, heart-burn, and nausea. Her food was weak broth, and her drink water, tinctured with a little white wine.

October 16th. The same state of the wound. The lint used in dressing was charged with the spirit of turpentine, and the other dressings were moistened with a camphorated decoction of the bark, while the patient took some

doses of it in substance. The evening dressings were the same; but the turpentine proving too irritant, was in half an hour removed. During the night the bowels were free; a secretion of milk seemed to have taken place; and the patient was feverish.

17th. Nothing particular occurred.

18th. Some discharges by stool; bowels soft, and hardly any uneasiness; sleep good.

19th. The lower ligature came away; the same dressings were continued; no stool; distressed in the evening with flying pains, but these were rather mental than corporeal.

20th. Some mental anxiety; the belly rather hard; the right side painful. A watery infusion of the bark substituted for the bark in substance.

21st. Calm; the upper ligature was detached; the lips of the wound of a vermillion hue. In removing the tent a white pus followed. The infusion of the bark was continued.

22d. The same state. A porridge was allowed to her appetite. In the evening a clyster was administered.

24th. Pale excrescences appeared on the wound. Dressings with the bark were continued.

25th. General uneasiness. The wound of a brown hue; the bandage and compresses were laid aside, and the wound dressed with a mixture of contrayerva seeds, sea salt, and sugared brandy. In the evening the fever very high, and a serous discharge from the vagina. No unusual heat or sensibility on the os tincæ was discoverable from the touch.

26th. She had a restless night, with a high fever, and the bowels greatly troubled with wind. Flannels wetted with emollient decoctions, and applied to the bowels, joined with frequent injections, mitigated these symptoms. The urine flowed plentifully. In the evening some fluid blood issued from the vagina. A porridge was permitted her.

27th. A laudable suppuration appeared in the upper part of the wound, but the pallid appearance of the flesh continued on the inferior part. The same discharge continued from the vagina. The heat of the lower belly having lessened, the emollient fomentations were omitted.

28th. The same state. The lower part of the wound

begins to grow moist with good pus. A little more food allowed her.

29th. Disturbed sleep at night; lochia stopt; emollient fomentations calm the symptoms.

30th. A troublesome night from a sharp pain on the ridge of the left tibia, which, during the day, extended over the whole limb; at night a swelling of the ancles.

31st. Great fever in the night, and the left thigh swelled. Emollient fomentations and milk whey were adopted.

Nov. 1st. The patient somewhat relieved, and has been evacuated. The left thigh was wrapt in flannel wetted with alkalized water.

2d. This day corresponding with her period of menstruation, a flowing of vermillion-coloured blood took place from the vagina and the wound; the fever subsided; the swelled limb was rather stiff than painful; the slough of the wound separated, and left the bottom florid and lively. The dressings with dry lint were continued.

3d. The menstrua liberal; in other respects nothing memorable.

4th, 5th, and 6th. The menstrual discharge free; the swelling of the limb quite gone; the cicatrix of the wound advancing. Is permitted to walk the chamber.

7th. The menstrua having nearly ceased, the patient was evacuated.

9th, 10th, and 11th. The cicatrix is almost complete; the belly soft; the usual functions regular. No further difficulty remaining, the patient walks about the house.

12th. The members of the consultation who attended the operation were called together to consider the condition of the mother, and decide whether she ought to be indulged in the strong desire she expressed to suckle her child.

Taking into consideration, 1st, the rickety affection of the mother, and the feeble powers of her organs as inadequate to the exertions of giving suck; and, 2d, the danger to which the child, already in a weakly state, would undergo by a change of milk; all the members agreed that the child should be committed to a healthy nurse, who, remaining under the eyes of the mother, should allow her to enjoy as much parental comfort as possible.

The mother having been perfectly cured and recovered, a certificate of the facts, as herein stated, was drawn up and

subscribed by the before mentioned gentlemen of the consultation, and by the patient herself, and her husband. All which, after having been attested by the Captain General Villaret, and the Colonial Prefect Laussat, was ordered to be printed at the expense of the government, for the purpose of publishing more extensively the triumph of professional skill over human sufferings.

Remarks *on the two preceding Cases.*

We have wished to present these two cases, from among many others in our possession, to contribute, as much as in our power, to do away *remaining doubts* on the necessity of recurring to the operative process in all cases of impeded child-birth, in those of rupture of the womb, and of extra-uterine conception.

We regret, that a diversity of opinion on that subject is so far indulged, by a late publication, as to record without censure, two cases of ruptured uterus, in which the afflicted mothers have been avowedly abandoned to the horrors of their fate, without any attempt from physicians or surgeons, to save their life, or the life of their offspring.

Instead of suggesting that, for the improvement of the obstetric art, there should be, in every town, or neighbourhood, one person duly qualified to decide in what case it might be proper to adopt an operation, we beg leave to assert it, as a *doctrinal point*, already established, that an incision of 4 or 5 inches into the abdominal integuments, and also through the gravid matrix, cannot be attended with more dangerous effects than those arising from internal effusion of fluids in the abdominal cavities; and that these are not absolutely irremediable, every qualified practitioner ought to be well informed. Should there be, however, a case in which delivery may be effected without operation, he must be the judge, that it occurs only when, after the womb is ruptured, the placenta, and a part of the child, remaining within the reach of the hand, it would be proper to extract both *per vaginam*. That this situation is seldom to be met with is obvious, if we consider the degree of projectile force which is exerted in the uterus, and by which it is suddenly ruptured.

This exception probably existed in the memorable instance of ruptured uterus, which happened in Philadelphia, 1804, as described in the Medical Repository, vol. vii. page 325. Two respectable attending physicians did not resort to gastrotomy; but one of them, Doctor James, delivered Mrs. P. per vaginam, before she died. He was guided by the authority of Dr. Douglass, of London, who, by the same mode, had, in a similar instance, saved the life of a mother. Perhaps much time was lost in that case, and, with it, many favourable chances for the mother and offspring.

May it always be strongly impressed on the mind of present and future practitioners, that the opening of the abdominal parietes, instantly performed, restores many organs and fluids to their natural functions, which are terribly confused by the rupture of the uterus; for, by whatever cause child-birth may remain impeded, it would always be better to have a gravid matrix cut open with the knife, than to let it be spontaneously rent asunder.

We should not long doubt or hesitate, by supposing that the Cæsarean operation and gastrotomy were *never performed in our vicinity or country.**

Whether the first has ever been attempted on this side of the Atlantic, we do not know; but of the latter, American medical annals enclose encouraging and very honourable records.

1st Case. In the year 1759, Dr. Bard, of New-York, successfully performed gastrotomy, for an extra-uterine conception, on a Mrs. Stagg, who recovered and lived to suckle the infant who had been cotemporary to it.†

2d. Mrs. Dennison, of New-York, was delivered, in 1790, of a large fœtus, extra-uterine, by the operative process, by Dr. M'Knight. This lady is yet alive.‡

3d. Mrs. Cocke, of Virginia, suffered gastrotomy in the year 1791, which was performed by Dr. William Baynam. She lived many years after in a state of perfect health.§

4th. The same gentleman took out a putrid fœtus from

* Vide New-England Journal, vol. iii. No. 2. p. 120.
† Vide Med. Rep. vol. vii. p. 226.
‡ Vide Edinb. Med. and Surg. Observations.
§ Vide New-York Med. and Philos. Journal, No. ii. p. 161.

the body of a woman, at Hayfield, Fairfax county, Virginia, in 1799, and she lived many years afterwards.*

5th. A full grown fœtus was extracted from the abdomen of a wench of Mr. Osborn, of Charleston, S. C. in 1803, by Dr. Prioleau, in presence of Doctors Irvine and Ramsay. To the latter we are indebted for the instructive account of the case, as inserted in our work ten years ago. Accidental circumstances caused the death of the patient, several weeks after the operation.†

6th. The last case, the subject of which we have personally been acquainted with, was happily performed by Professor J. Aug. Smith, in the year 1808, in presence of many physicians. The woman, to our knowledge, has long survived her successful delivery.‡

Two successful cases only of gastrotomy, after ruptured matrix, have been acknowledged in the faculty of Medicine of Paris. These occur very rarely, but those of the Cæsarean operation are numerous in the European records, although they do not bear an equal proportion of success to those of gastrotomy in the United States; they are no doubt of a more perilous nature. A committee of the faculty of Paris, headed by Baudelocque, were directed, ten or twelve years ago, to report on the accurate results of all known and recorded Cæsarean operations. It will no doubt appear extraordinary, but interesting to our readers, to learn that more than one half of the computed operations had been the means of saving the life of the mother, or of the child, and nearly one-third had proved successful to both.§

* Vide New-York Med. and Philos. Journal, No. ii. p. 161.

† Vide Med. Rep. vol. iii. p. 225.

‡ Vide New-York Med. and Philos. Journal, No. i.

§ It is by memory only that we recur to that important and authoritative document, which it has not been in our power to procure, and which we have not seen since the year 1804. It was presented by the writer to the late Benjamin Rush, for very good purposes. As far as recollection can assist, the number of recorded Cæsarean operations was upwards of *ninety*; out of which *fifty* had proved successful to the mother or the offspring, and more than *twenty-five* to both.

Successful Operation for INGUINAL ANEURISM, *in the New-York Hospital.*

On Tuesday, the 4th of January, 1814, the operation of femoral aneurism was performed in the theatre of the New-York Hospital, by Wright Post, Esq. one of the Surgeons of that institution, in the presence of a numerous attendance of practitioners and pupils.

There were several circumstances in this case which rendered it more than usually interesting. The patient, who called himself Allen, was a vigorous man of colour, in the 41st year of his age. The disorder of the artery was spontaneous, and could not be referred to any external injury or ostensible cause. Its seat was in the upper part of the left thigh. The tumour was of considerable size. The pulsation was very evident. A peculiar whizzing, or thrilling motion, was perceived at each stroke, by the fingers. The swelling had been observed by him about two months before admission. It had gradually and regularly increased. In other respects he enjoyed a good share of health.

After his first reception into the hospital, on the 13th of October, 1813, he had been ordered to try the recumbent posture with rest, and compression to the tumour. This course had not been productive of any substantial benefit. The disease advanced in all dimensions, becoming prominent, and diffusing itself further around. The artery also was sensibly enlarged, or thickened, for a more considerable distance above the tumour than could be distinctly traced. A consultation was called, and, on examination, no probability of relief appeared, excepting by an operation.

It was apprehended that this morbid condition of the artery might extend to the iliac bifurcation. It was foreseen that there might be a necessity of dividing the membrane investing the abdominal viscera, of exposing the intestines and omentum, and of inducing inflammation of the peritoneum. Other difficulties were considered, and the attending Surgeon determined to encounter them all by attempting the operation.

Almost a month was lost after the measure had been recommended, before the patient would give his consent. All

this time the disease had made its ordinary progress, and rendered the eventual success still more uncertain.

Dr. Post proceeded to trace the artery with the knife, cautiously from the sac upwards. In this he was restricted by the tension given involuntarily to the muscles of the thigh, in consequence of the pain and irritation. He was also circumscribed by the limits of the aneurismal tumour itself pushing towards the pelvis; it became necessary likewise to counteract the impression made upon the viscera of the belly pressing downwards by the patient's straining, and forcing themselves upon the operator after the peritoneum was opened. But another difficulty occurred of peculiar moment. There was a thickening of the sheath which binds down the blood-vessel to its place. On tracing the external iliac artery towards the point of union with the internal, the disease seemed to cease a little more than an inch below that spot. Here the operator prepared to apply the ligature; but the cellular membranous substance investing the artery had so far partaken of the disease, as to resist the action of the finger nail when employed in its separation. In this state of things the thickened envelope was cautiously divided by the scalpel, and the blood-vessel afterwards loosened by the finger. The ligature was then applied by means of the blunt needle and crooked forceps. The artery was so deeply situated, the space between the diseased portion and the fork was so short, and the impediments to a double tying so considerable, that it was considered sufficient to pass the thread around but once. Accordingly, after the knots had been well secured, the event of the operation was permitted to rest upon a single ligature, and upon an artery not divided by the knife. The patient bore it with remarkable firmness. Very little blood was lost. The wound was dressed with strips of sticking plaster and lint. After the administration of a composing draught, and an attempt to procure rest, the condition of the limb was examined.

It was observed, that instantly on applying the ligature the pulsation in the tumour had ceased. On the succeeding day, with the stillness of the swelling, there was observed to be a very perceptible diminution of it. The thigh, leg, and foot had been nicely covered with flocks of cotton, but they had never grown cold. Circulation seemed to be car-

ried on to the extent required to keep them sufficiently warm. This indeed was so remarkable, one might be led to conjecture that the blood, obstructed in its direct passage by the tumour, had forced its way through the internal iliac and the lateral vessels, long before the operation. There seemed to be, from the beginning, a sufficient distribution of blood through the limb for all the purposes of warmth, nourishment, voluntary motion, and a good degree of sensation.

The intestines readily yielded to the operation of cathartics and injections. There were no symptoms of peritoneal inflammation, but for about ten days a most convulsive and distressing hiccough, with occasional vomiting, harassed the man. The febrile symptoms, at the same time, were very moderate. The pulse was rather small and low. During that time his situation was doubtful; and in respect to hiccough, wakefulness, anxiety, and exhaustion, very alarming. The nervous system was much more sensibly affected than the vascular.

But, in the mean time, the healing of the wound proceeded regularly. On the 13th day the ligature came away; the hiccough, vomiting, and more alarming symptoms subsided; and the greatest distress of which he complained, was a pain in the lower part of the limb, particularly about the foot and toes. Occasionally a numbness, alternating with pain, was felt near the groin.

These symptoms, however, gradually abated. The cicatrization of the wound was the completion of chirurgical art. The circulation through the aneurism was stopped, and the lateral vessels carried a sufficient quantity of blood to warm and nourish the limb. By degrees, the power to employ it for the purposes of voluntarity and locomotion were returning, when the man was found to be infected with syphilis of longer standing than the aneurism. For this he was salivated by quicksilver, and put upon a proper curative course.

I examined this man on the 24th of March, 1814, while he was under the salivation, and felt the pulsations of the artery on the upper side of the foot; but there was then no motion in the aneurismal tumour. Yet, within forty-eight hours from that time, a beating became perceptible; and, on the 30th, by pressing the fingers gently upon the swelling, I was

satisfied of its reality. He, nevertheless, made no complaint of pain or uneasiness; and on being requested to walk, performed that exercise with more readiness than he had been able to do since the operation.

Aneurism of the POPLITEAL ARTERY *cured by the Application of Ice.*

Mr. Ribes has written the case of a military man, cured of the popliteal aneurism by glacial refrigeration. He was forty-six years old, and had been wounded in 1794, near the right groin, by a ball, which passed through the thigh without touching the important organs. In consequence of this accident, he had remained almost four months without being able to extend the limb. Three months afterwards, finding himself weak thereabout, he entered the veteran corps. Shortly after this, he felt a smart pain in the ham. For more than a month he continued in this state of suffering, and then resolved to try the expedient of a wooden leg; but he discovered there was a swelling in the ham. Mr. *Sabatier* pronounced it to be an aneurism, and that the symptoms were too unequivocal to admit of a doubt. This able professor inclined to try the effect of rest, combined with a refrigerating plan. He, thereupon, applied to the tumour ice, wrapped in a linen cloth. During the first days, the prickings and throbbings diminished, and the limb fell into a numbness that was neither troublesome nor painful. At the end of a month, the swelling had lessened in size; while its sides appeared more thick and hard. Rest and sleep had returned. At the end of two months, the tumour did not exceed, at most, the third of its primitive bulk; and only feeble pulsations were to be perceived in it. The patient continued himself to apply the ice, night and day, until the end of the third month, and never permitted an interval of ten minutes between the applications. At the beginning of the fourth month he got up, and walked with his crutches, for the first time; but he was soon able to move about with a cane only. At five months he walked without support, and in the sixth he returned to his usual course of life.

Thirteen years passed away, and this person experienced

no indisposition whatever; but his gaiety forsook him, and he finally died in December, 1811, of a disease in the heart. Mr. Ribes could not procure the body until twenty-seven days after death. Putrefaction had then made great progress. However, he could even then perceive the great enlargement of the heart, and of its cavities, as well as of the pulmonary artery; the lungs surcharged with blood, and the aorta not so big as common. Mr. R. injected the arteries of the limb, and made a preparation and a drawing of them. They are deposited in the cabinet of the faculty. It is sufficient to observe, after examining them, that the circulation was proved to have been established by the enlargement of the small and deep arteries, that conveyed the blood from the upper portion of the femoral trunk, which had retained its natural form, directly to the tibial and peritoneal canals, a fact, which seems to support an opinion, uttered by Mr. Deschamps, in his remarks upon popliteal aneurism.

[*Bulletin de la Faculté de Paris*, 1812.

INTELLIGENCE.

Diseases *of* New-York.

THE atmospheric constitution has been remarkably mild during winter, humid and cold in the spring. After the autumnal months no new prevalence of disease has been observed; the intermitting fever and the typhus mitior of the preceding season have not unfrequently been noticed, although with a lessened degree of obstinacy and fatality. They disappeared at the period of the shortest days, and were gradually succeeded by pulmonic congestions, acute asthma, by hæmoptysis, and cynanche trachealis. Mortality attended the last and phthisis, more generally in February and March. Among the different species of this deplorable and ravaging malady, we will mention one, not noticed in that excellent work on consumption, by G. L. Bayle, of Paris. (Vid. Med. Rep. New Series, vol. i. p. 48.) It is the *phthisis laryngis*, of which several cases have fallen under our notice. Some symptoms of this terrible disease have been delineated in our 13th vol. p. 24. It is there stated, "that hoarseness, destruction of voice, and an impeded deglutition, were its principal characteristics: that it was not necessarily connected with any affection of the lungs, in which purulent matter incessantly forming, and absorbed in the circulation, creates hectic fever, and increases debility; and that the progress of debility and exhaustion, in phthisis laryngis, was nearly the result of want of nourishment." From recent observation, we have been enabled to ascertain the truth of these circumstances, by the case of a patient, who, within a few weeks of his death, was capable of daily labour at one of the hardest occupations. Deglutition was at last absolutely impeded, so as to return any liquid food by the nostrils, when the strongest efforts were made to swallow. Supposing that the ulceration of the tonsils, its progress on the pharynx, and all the investing membranes of the organs of

respiration, are the true diagnosis of phthisis laryngis, it would remain important to consider by what gradual destruction the fibres of the muscles of the pharynx serve no longer to close the passage into the fauces, and to carry the food into the pharynx, by which the fluids are compelled to ascend in the nostrils. As the extinction of voice is cotemporary with the abolition of the power of deglutition, there is no doubt of the progress of ulceration keeping pace downwards as well as upwards, and on all the muscles of the larynx, which are most subservient to the formation of the voice.

Winter Epidemic, Peripneumonia Notha.

For the third time, and at the approach of spring, we have experienced, in this city and its suburbs, the return of that alarming epidemic, *Peripneumonia Notha.* Its inflammatory action, and *typhoid* symptoms, have been more compatible with venesection. It has not been so fatal as it had been before. Nor can we trace a perfect similarity between our cases, and those of a more dreadful and rapid mortality, which were reported to us from many neighbouring counties, and distant places in the eastern states, with characters of violent and erratic pains, with paroxysms of convulsive delirium, keeping pace with difficulty of respiration, and even with suffocation. Various dissections have shown, as usual, what singular morbid determination is effected in the lungs and pericardium, by effusion of coagulable lymph, by adhesion, &c.

Having presented to our readers a collection of many papers *in the 3d and 4th numbers of our first volume, new series*, on the winter epidemic, we informed them that we should, at a future time, (page 334) resume the subject, with our own inferences and doctrines, from the documents that were laid before us. Some other important papers have since reached us from the Medical Society of the county of Saratoga; from B. Vaughan, Esq of Maine; from Dr. Vine Utley, of Lyme, in Connecticut; and from other respectable sources, which will prove valuable articles for our next number; and it shall be our en-

deavour to elucidate the hitherto mysterious diagnosis or pathology of a disease, so dangerous in its rapid stage, various in its symptoms, and even singular in the modes of treatment, which have in many instances arrested its baneful effects.

BILLS OF MORTALITY, *as observed and reported by* Dr. ISAAC BALL, *M. D. Assistant of the Board of Health. Commencing January* 1, *and ending April* 2, 1814.

	Consumption	Various diseases	Total	
Jan. 1 to 8	11	21	32	
15	10	28	38	
22	1	23	24	
29	9	19	28	
February 5	8	23	31	
12	11	20	31	
19	12	21	33	
26	12	22	34	
March 5	15	18	33	The fluctuating state of atmospheric temperature this month, appears to have been peculiarly fatal to phthisis.
12	21	27	48	
19	11	27	38	
26	20	26	46	
April 2	9	21	30	
	150	296	446	

A NEW BRANCH OF SURGERY.

On the removal, by surgical Aid, of portions of diseased Bones, both in the articulations, and out of them. (See Med. Rep. New Series, vol. i. p. 63—69.)

The language of surgery has become in many respects definite and precise. For example, *incision* signifies a superficial cutting through the integuments simply. *Section* means a division of any lengthened or cylindrical organ, as of a tendon, a nerve, or of the spermatic cord. *Rescission*,

the removal of a part or portion of any of the soft organs, as the rescission of the tonsils. *Resection* is used in nearly the same sense, but applies to the hard parts, as the resection of the bones. *Ablation* is a generic term, embracing all cases where a part is taken away, such as the ablation of a member or of a tumour. *Amputation* is applied to a removal by means of a section circularly, as the amputation of the penis, or of the arm. *Excission* is the removal of an accidental production, or of an excrescence, as the excission of a polypus; and *extirpation* denotes a deep incision made with the view of cutting away the roots or fastening of a part, as the extirpation of the eye, or of a cancer. It is highly useful to possess such a select and appropriate language.

In 1812, *M. Roux*, a doctor of surgery, publicly defended, in Paris, a dissertation on the *resection* or ablation of portions of any bone whatsoever. He divides the subject into two parts; in the former of which are comprehended the bones of the head and trunk; and, in the latter, those of the limbs and extremities. Removals of pieces of the first class, are effected by the trephine, gouge, pincers, &c. while those of the second are accomplished by means of the saw. *Resection*, properly speaking, is performed by the saw, an instrument which has not been employed for this purpose more than half a century. Mr. R. maintains that resections of the long bones may not only be made near their articulations, but in their bodies themselves, whether they are divided or entire. He dilates more especially on cutting out portions of bones that are diseased at the joints.

This same doctrine has been maintained by his disciple *M. Denoue*, in a printed essay. Following the course of his master, Mr. D. considers the advantages likely to result from *resection* in caries, necrosis, spina ventosa, and sarcastosis, as well as in certain fractures and luxations. According to this adviser, caries, which has been the disease in which resection has been practised more than in any other, is precisely that for which it is the least adapted. He considers the operation as utterly useless in necrosis. He believes its benefits to be very limited in spina ventosa and osteosarcoma. But resection appears to have been frequently proper in recent and compound fractures. In those

that are old, and not consolidated, and even in luxations, where the displaced bone has lacerated the neighbouring soft parts, and cannot afterwards be reduced. Whatever may be the practical value of these opinions, we insert them with pleasure, as a valuable document in surgery.

[*Journal de Med. May*, 1812.

Brande's Experiments on the Blood and other human Fluids.

"This inquiry was undertaken with a view to settle the question, whether the red colour of the blood is owing to the iron which has long been known to exist in it. Led by rather vague analogies, as the red tinge given to mineral substances by iron in different states of oxydation, the French chymists had somewhat hastily inferred, that the blood owed its colour to an admixture of phosphate of iron. Several circumstances in the constitution of this fluid, had led many to doubt the justness of the hypothesis; and Mr. Brande's experiments go far towards ascertaining its incorrectness, and setting this part of the question at rest. They have also lead him into various other researches, which merit our attention, both respecting the chyle and lymph, and those crassamentous and serous parts, which immediately compose the blood itself."

"Mr. Brande infers from these experiments upon mordants, that the colouring matter 'may prove more useful in the art of dyeing than has hitherto been imagined, since neither the acids nor alkalies, except the nitrous, have much tendency to alter its hue.' He also conceives, that it is rendered peculiarly adapted to the purposes of the calico-printer, by the readiness with which it is effaced, where no mordant has been used. He then observes, that it has always been used with madder by the Armenian dyers, as necessary to give a permanent red. Unquestionably it has; nor do we believe any one acquainted with dyeing will receive the information as very novel, that blood may be made useful in these processes. The red colours now used are quite well understood to owe their colour to the use of ox blood; and the operation of printing upon them has hitherto been performed by the aid of oxymuri-

ates, which act after a certain length of time so as to discharge the colour. They are applied by means of plates, in which holes of the shape of the patterns are cut, so that the parts of the cloth intended to be kept red, are protected from the acid. Of late, however, a great improvement in this clumsy process has been imported from France, (and we believe a patent has been granted for it,) whereby figures of any degree of delicacy which can be engraved on a copperplate, may be printed on the red cloth. It consists in charging the plate with an alkaline mixture or pigment, having a stronger affinity for the oxymuriatic acid than the base which holds it in the figure, and stamping the cloth with it; then dipping it in the oxymuriate liquor, and in a few minutes washing it. The nascent acid at the moment of decomposition of the oxymuriate, possessing different properties from the same acid in its perfect state of production, as happens in so many cases of chemical agency, suddenly discharges the red colour from every space and line where the alkaline pigment has been applied, and makes the figure permanently white; while the subsequent washing removes the oxymuriatic liquor from all the rest of the cloth, before it has had time to alter the colour. If further trials shall add to the perfection of the colour obtained by Mr. Brande's process, something like the converse of what we have been describing, may be practised by the printers; they may charge the pattern-plate with a mixture or pigment of the nitrate and muriate, and then, having stamped the cloth with it, plunge it in the blood-liquor, and afterwards wash the superfluous colour away. They will give the red pattern, on a white ground, with as much nicety as the improvement on the old mode gives the white on the red ground."

"This paper concludes with several remarks upon the inferences to be drawn from the experimental details which it contains. We have already, in the course of our analysis, had occasion to state these as we proceeded, and need not now resume them more particularly. The absence of gelatine, where it was formerly supposed to exist in abundance, is the result of most importance, and which also rests on the least questionable grounds;—and it should seem to follow from hence, that this matter, so essential to the animal system, is a product of secretion. The exist-

ence of iron in a much smaller proportion than was formerly supposed, and its presence in equal quantity, both in the coloured and colourless parts of the blood, are also well established points. But of the conclusion absolutely against its having any concern in the colour, we have ventured to express a degree of doubt.

[*Edinburgh Review, No.* 43.

Another cause has been suspected of contributing essentially to the red colour of blood, by Professor Dumas, of Montpellier, and which seems to have been unknown to Mr. Brande. His experiments were merely physiological; and the following results have been reported by M. Dupuytren.*

1. In as much as physical pain disturbs respiration, it suffices to alter the red colour of arterial blood. Pain is an obstacle to the free introduction of air into the lungs, and makes the blood black, just as the section of the pulmonic branches of the eighth pair would produce the same effect.

2. Arterial blood does not turn black immediately after the section of the above nerves; it turns black only after the air contained in the lungs is totally absorbed.

3. After the section of the nerves and the change of colour is effected, you may restore the original red colour by a mechanical introduction of atmospheric air, or of oxygene, into the lungs.

4. Animals in which the eighth pair has been divided, do not show the accidents nor symptoms appertaining to asphyxiation by deleterious gases, but those that always result from want of respirable atmospheric air.

5. The contact of oxygene with blood, effects that chemical action which tinges the blood; and this may be said to happen without influence from the lungs.

6. The red colour being a physical quality, it cannot be modified by vital action in the *essential* cause which produces it. Hence the section of the eighth pair deprives the blood of it, only because air, the principal agent for that combination, is not admitted in sufficient quantity into the lungs, as these organs are no longer disposed to receive it.

* Vide Bibliotheque Medicale, tom. xxiii. p. 244. 1808.

Spina Bifida.

At an extra meeting of the Medical Society of the county of New-York, held in February last, Dr. William Stillwell offered to the examination of the members, an extraordinary case of Spina Bifida; the analogy of which, we believe, is not recorded in the annals of medicine. The subject was a healthy boy, of five years of age, born in New-Jersey. His mother stated, that he had, at his birth, the usual appearance of a Spina Bifida, which soon grew and protruded to the size of a walnut. It could then be pressed, and the contained fluids would recede, as if propelled in the adjacent osseous case. The tumour affixed on the lower lumbar vertebræ, about two or three inches above the coccix, was pendulous: it measured at its neck eight or nine inches in circumference, and sixteen in its largest transversal diameter; being similar in many respects to a bladder distended with water. Its colour externally did not differ much from that of the skin, except by its transparency when opposed to the light. This remarkable appendage could be pressed on either side of the body, without any bad effect felt by the child. He had, like all other children, received many falls and blows, which would have burst the tumour, had not its coats been of a firm and strong texture.

From the circumstances related, the nature of the tumour could not be easily mistaken, although the appearances were so singular. Through a large aperture of the vertebral column, the investing dura mater of the medulla has formed a hernia, which nature has happily protected by a sufficiently strong external integument, for the preservation of the life of the child, who remains now an interesting subject of surgical investigation, whether by a ligature at the very neck, and a compressing apparatus to the parts, which might be further secured by a preserved flap of its external coverings, the tumour might not be safely removed.

In the first volume of our new series, p. 28, the case of a protruding Spina Bifida, on a new born infant, was recorded, with the successful operation of its abcission and cure, by Dr. Henry H. Sherwood, of Rutland. In this operation the dressings were so well managed as to prevent any progress of inflammation from external causes, and no ligature was judged necessary.